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I.—*On a Collection of Birds from British East Africa and Uganda, presented to the British Museum by Capt. G. S. Cozens.*—Part I. STRUTHIONIFORMES—PELECANIFORMES.
By CLAUDE H. B. GRANT, F.Z.S., M.B.O.U. *With Field Notes by the Collector, WILLUGHBY P. LOWE, M.B.O.U.*

(Plates I. & II. and Text-figures 1 & 2.)

INTRODUCTION.

THE collection which I am about to discuss was made by Mr. Willoughby P. Lowe, who, at the request of Capt. G. S. Cozens, was recommended by the British Museum of Natural History to accompany him as naturalist on his recent expedition through British East Africa and Uganda. Mr. Lowe's previous excellent work as a collector is well known, and the present collection has fully come up to his usual high standard, both in numbers and species; and I may perhaps be allowed to congratulate the collector on the results, and also Capt. Cozens, without whose generosity this interesting series would never have been obtained.

On the 19th of August, 1912, Mr. Lowe left England and

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joined Capt. Cozens at Nairobi on the 17th of the following month.

Two separate trips were made during the few months spent in East Africa ; the first from Kijabe Station, southwards to the Anglo-German Border, and back to Naivasha Station, between Sept. 24 and Dec. 9, 1912 ; and the second trip starting from Nakuro Station, northwards through the always interesting Rift Valley, and across to Nimule and Gondokoro on the White Nile, between Dec. 21, 1912, and March 5, 1913.

A few birds were also obtained at Kikuyu, on Mr. Judd's farm, on Sept. 21, 22, and 23, before starting for the Anglo-German Boundary, and again on the return at Lake Naivasha on Dec. 12, before leaving for the north.

The new subspecies described here or in the Bulletin of the B.O.C. are three in number, as follows :—

Pterocles quadricinctus lowei, *Stigmatopelia senegalensis sokotræ*, and *Scopus umbretta bannermani*.

The classification followed is that of Dr. Sharpe's 'Hand-list of Birds,' and in every case I have given reference only to the original description of each species or subspecies ; all these have been personally checked, and where other works have been mentioned, the reference has been included in the matter under discussion.

I have also followed the modern and useful rule of trinomials wherever necessary, and have endeavoured to keep strictly to priority, as only by this means can all controversy on the question of names be ultimately eliminated.

I have to thank Mr. Ogilvie-Grant for so kindly allowing me to work out this collection, and for much help and advice, Mr. Tom Iredale for very considerable help on questions of nomenclature, and Mr. W. L. Selater for valuable assistance.

I also have to thank Mr. Charles Chubb and Mr. Thomas Wells, of the Bird Room, for much assistance.

This part covers the collection up to the end of the Pelicans, and includes 92 species and subspecies.

Mr. Willoughby Lowe's field and other notes are enclosed in square brackets to distinguish them from my own comments.

DESCRIPTION OF THE ROUTE.

Mr. Lowe has kindly sent me a description of the country passed through and the difficulties experienced by Capt. Cozens' party ; these include some interesting notes on the fauna and flora, amongst which attention may be drawn to a valuable new record of the occurrence in British East Africa of Verreaux's Eagle.

I will here leave Mr. Lowe to continue the tale of the expedition, the route of which can be followed on the map specially prepared to illustrate it (Plate I.).

"A few days having been spent at Nairobi, we left for Mr. Judd's farm near Kikuyu ; around there the country is open and very fertile, with coffee plantations and a few clumps of trees planted here and there. Birds were plentiful. From Kikuyu we proceeded to Kijabe Station, where we picked up our porters and started for the southern trip. The country between Kijabe and Mt. Suswa was at first wooded, and later opened out into extensive plains which were found to be hot, dry, and dusty. No water could be had until we reached Mt. Suswa, even then it was not at all plentiful, and by no means good. Our camp was pitched at the foot of Mt. Suswa, where game abounds and is very tame. Ostriches were quite numerous, and in the bush skirting the plains I surprised a fine male within range of my 12-bore. Leaving Mt. Suswa we moved on to the Mau Escarpment, passing westwards across the Loita Plains and Lemek Valley to the Amala River, which we reached on Oct. 9. The country hereabouts is very grassy and park-like and teems with game, and birds are likewise abundant. It was along this river, under a shady tree, that on Oct. 22 I flushed a Pennant-winged

Nightjar, and so interested and surprised was I at my first sight of this curious bird, that I allowed it to escape across the river ; unfortunately this was the only time this bird was seen.

“ By Oct. 25 we were twelve miles east of the Amala River and only eight miles from the Anglo-German Boundary, where there is a pleasant little water-course with large trees and dense foliage. Here several new birds were observed, such as Trogons, Bush-Robin, etc. ; whilst baboons abounded, feeding on the fruit of the wild fig. Four days later we were west of Leganisho—the country being very stony and well wooded, the small stream running in places through solid rock with deep holes and precipitous banks. On Nov. 2 we arrived at the Narossura River, with its clear running water and banks fringed with tall junipers and other bushes. Francolins (*Pternistes leucoscepus infuscatus*) were common, and large Swifts passed up and down the stream high overhead. From the Narossura we moved to Lengototo, and pitched our camp at 6000 ft. in a good buffalo country, well wooded and watered, and surrounded with hills. On Nov. 12 we moved again to the Narossura River, and camped at 5000 ft. ; the country being stony near the river, as also are the dry hills, which are dotted with a few small trees and bushes, with luxuriant grass in places. Below our camp the river rushes down and over a waterfall of about 200 ft. to meet the southern Guaso Nyiro. On Nov. 19 the Martial Eagle (*Spizaëtus bellicosus*) was observed. The tsetse fly being bad below, we left our dogs and mules behind and descended to Lake Magadi, which we could see from our camp, and so to the southern Guaso Nyiro. Down there the weather became hot, and travelling was difficult owing to the deep ravines which intersect the country. Here the first pair of Pygmy Sparrow Hawks (*Accipiter minullus*) were seen, and assembled on the ground beneath the trees were small flocks of Weavers (*Textor*) in company with Francolins and other birds.

"On Nov. 24 we left the southern Guaso Nyiro on our homeward journey, and crossing the Mau Escarpment, with its forests of juniper and grassy glades, we descended the escarpment at the southern end of beautiful Lake Naivasha, and followed the eastern shore to the railway-station. From here we entrained for Nairobi, where we arrived on Dec. 9. The packing and despatching of the specimens being completed, and having obtained a fresh supply of provisions, we left Nairobi for Nakuro on Dec. 16. Here Capt. Lambert joined our party. At Nakuro some delay was caused on account of quarantine and non-arrival of some goods, but we at last made a start for Baringo on Dec. 21, our final objective being Nimule on the White Nile. The party now consisted of Capt. Cozens, Capt. Lambert, Mr. Judd, and myself. By the aid of ox-wagons and a dozen porters, we reached Lake Hannington on Dec. 25, and transferred our baggage to camels which were in charge of eight armed Somalis. Two days later we arrived at the post of Baringo, a desolate spot; the lake, however, looked very interesting, and it is to be regretted that time did not allow us an opportunity of visiting it. Our camels being overloaded we succeeded with great difficulty in buying two more, as well as a couple of donkeys.

"On January 2 our party were safely over an escarpment, and two days later we crossed the Kerio River. The country had now become flat and dry, and to the west of us lay the Suk Hills. It was hereabouts that we passed quite close to a herd of some 200 elephants. We pushed on to the Weiwei River, the country being still dry and stony, dotted with small thorn bushes, and intersected by a few dry water-courses; along the banks might be seen an occasional Mongoose (*Helogale percivali*), or a Dik-Dik (*Rhynchotragus nasoguttatus*). N'gabotok, the last British outpost, was reached on Jan. 10, where we were cordially received by Capt. Booth, who very kindly found us a native guide and interpreter, besides giving us some additional

much-needed water-bags. Following the Turkwel River, which near here disappears in the sandy river-bed, we crossed a dry and barren country covered with a few scattered bushes where birds were generally scarce, except Doves, which were very numerous; the Lesser Koodoo was also common. The Turkanos obtain water from wells in the bed of this river, and the shepherds carry, or rather drag after them, hooked sticks 30 ft. long to shake down seeds and leaves from the trees for their half-starved goats. Some unpleasantness with the natives made us glad, on Jan. 16, to leave this spot for the Kozibiri River. From now on we suffered for want of water—even digging in the white sandy river-bed was of no avail—and we were therefore not sorry on Jan. 20 to find a mineral spring much frequented by elephants; unfortunately, fly being discovered at 2400 ft., our hard-worked camels, which were already seriously diminishing in numbers, had to move on without their much-needed rest. We now ascended the Maroto Mts., and camped at 4000 ft. in a euphorbia-covered country. No water was to be had until Jan. 24, on which date a beautiful spring was discovered, and such game as Giraffe, Koodoo, and a new form of Duiker (*Cephalophus grimmia lutea*) were plentiful, whilst Guinea Fowls and other birds abounded. Here there were signs of cultivation by the Karamojans, who live in beehive-shaped huts, in almost inaccessible places. At this spring I had the pleasure of seeing at quite close quarters a pair of Verreaux's Eagles (*Aquila verreauxi*), which were hunting hyraxes along a perpendicular cliff, full of large but inaccessible caves. Meeting these birds at this place was of great interest, as in the 'Fauna of S. Africa,' vol. iii. 1903, p. 293, Stark and Selater mention that "Verreaux's Eagle is found in the highlands of Shoa, and reappears in southern Africa, but has not hitherto been noticed between these distant points." On Jan. 28 we descended to 4400 ft., where a good stream of water flowed, and here we waited for our weary transport,

"From this camp Cozens and I climbed with difficulty a peak 8000 ft. high, and saw for the first time a Karamojan village. Baboons, Klipspringers (*Oreotragus o. schillingsi*), and Reedbuck were seen, though birds were scarce. However, a pair of Francolins (*Francolinus uluensis*) were found at 7500 ft., and a pair of Rock Chats (*Thammodia subrufipennis*) were secured. These hillsides were very stony, though grass was abundant; bushes somewhat resembling rhododendrons are found here, and mistletoe with yellow berries was noted, but the large trees were found chiefly along the streams at the bottom of the ravines.

"At the end of January we left the Marotos for Annamuget and Bakoro, and on this road water could only be had by digging to a depth of 30 feet. The natives were now more friendly, and by Feb. 3 we had passed the Lobar Mts., and at an altitude of 3900 ft. we found water at eight feet below the surface. The Bakoro Plains are grassy and devoid of game, and only a few Larks, Bustards, and Ostriches were seen. The surrounding mountains are shaped like mole-hills. We passed along the north-east slope of the Nakwai Hills on Feb. 8, where the country is fairly level and bushy; on these hills I first met with White-headed Barbets. We had the misfortune to lose three more camels on this trek. The next day we departed for Kamchuru, which lies at an altitude of 3250 ft. in a well-wooded and fertile country, where we were glad to spend some days • resting. To this point our loss of transport animals had been great, compelling us to abandon everything but necessities. Passing through thickly wooded country, we pressed on for Kittigom, a new, pretty, and healthy outpost of the King's African Rifles; on reaching there we found all the officers were away. We therefore sent a runner to Nimule to try and get porters, and were lucky enough to find ten men on the spot. Once more getting on the move, Feb. 23 saw us at Falabek, 2300 ft. above sea-level, and on the 25th we crossed the Assua River. The temperature now rose to 108° in the shade, and we

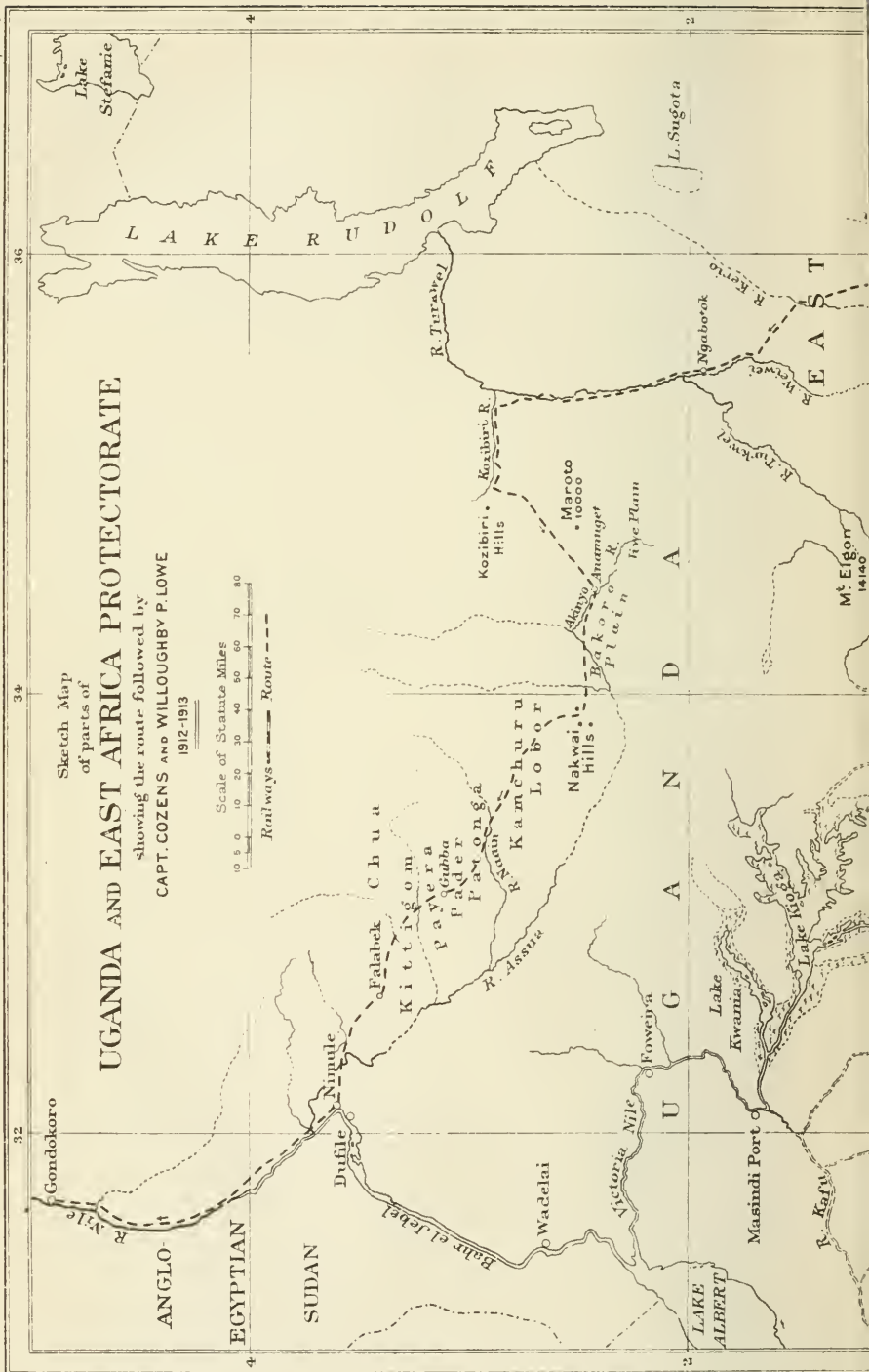
were not sorry to reach Nimule the following day. Here we succeeded in getting some fresh porters, and, parting with the few camels that had survived, we pushed rapidly on, travelling chiefly at night, and reached Gondokoro on Mar. 5. The packing of our specimens, which now totalled over 1200 birds and 227 mammals, besides reptiles and insects, took some days. Travelling viâ Cairo and Port Said, we landed in England after nearly seven and a half months' absence, during which time not one of us had had a day's illness."

Itinerary of the Expedition.

The following is a dated itinerary showing the various localities at which birds were collected, all of which will be found in the map (Pl. I.) :—

First journey from Kijabe Station, west and south to the German border, and east-north-east to Naivasha Station.

Sept. 21-23, 1912.	Kikuyu.	}	Naivasha Dist., Bt. E. Afr.
" 24.	Kijabe.		
" 25-27.	Mt. Suswa.		
" 28-30.	Mau Escarpment.		
Oct. 1-2.	Southern Guaso Nyiro.	}	Nyanza Dist., Bt. E. Afr.
" 3-5.	Loita Plains.		
" 6-8.	Lemek Valley.		
" 9-25.	Amala River.		
" 25-28.	12 miles E. of Amala River.		
" 28-29.	West of Mt. Leganisho.		
" 30-31.	Near Mt. Leganisho.		
" 31-Nov. 1.	East of Mt. Leganisho.		
Nov. 1-6.	Narossura Plateau.	}	Naivasha Dist., Bt. E. Afr.
" 7-12.	Lengototo.		
" 12-21.	Narossura River.		
" 22-25.	Southern Guaso Nyiro.		
" 26-29.	Loita Plains.		
" 30-Dec. 2.	Foot of Mau Escarpment		
Dec. 3-6.	Lake Naivasha and Naivasha.		
" 12.	Lake Naivasha.		



Second journey from Nakuro Station through the Rift Valley and north-west to Gondokoro on the White Nile.

Dec.	21, 1912.	Nakuro.	} Naivasha Dist.,
,,	22-24.	Baringo Road, 20, 40, and 50 miles north of Nakuro.	
,,	25.	Lake Hannington.	
,,	26.	15 miles south of Baringo.	
,,	27-28.	Baringo Post.	
,,	29-30.	7, 12, 16, and 30 miles N.W. of Baringo Post.	
,,	31.	Nginyan River.	
Jan.	1, 1913.	40 miles N.W. of Baringo Post.	
,,	2.	Kito, 60 miles N.W. of Baringo Post.	
,,	3.	70 miles N.W. of Baringo Post.	} Bt. E. Afr.
,,	4-5.	Kerio River.	
,,	5.	10 miles N.W. of Kerio River.	
,,	6-9.	Weiwei River.	
,,	10.	N'gabotok, Turkwel River.	
,,	11-16.	Turkwel River.	
,,	16-21.	Kozibiri River.	
,,	22.	Kozibiri Hills.	
,,	23.	Hills 10 miles N. of Maroto.	
,,	24-30.	Mt. Maroto.	} Eastern Province, Uganda.
,,	30-31.	Jiwe Plains, 10 miles S.W. of Mt. Maroto.	
Feb.	1-4.	Annamuget and Akinyo River, Bakoro Plain.	
,,	5-9.	Nakwai Hills.	
,,	9-14.	Kamchura, Lobor.	
,,	15-17.	River Naam, Patonga Dist.	
,,	17-19.	Gubba, Pader Dist.	
,,	19.	Payera Dist.	
,,	20-21.	Kittigom, Chua Dist.	
,,	22-24.	Falabek.	
,,	25.	Assua River.	} Northern Province, Uganda.
,,	26.	20 miles E. of Nimule.	
March	1.	50 miles S. of Gondokoro.	
,,	2.	40 " "	
,,	3.	30 " "	
,,	5-7.	Gondokoro.	

SYSTEMATIC LIST.

1. *Struthio massaicus*. Masailand Ostrich.

Struthio massaicus Neumann, J. f. O. 1898, p. 243 : Ukamba, B.E.A.

One egg taken at Loita, on the 5th October, probably belongs to this species.

2. *Francolinus coqui hubbardi*. Hubbard's Francolin.

Francolinus hubbardi O.-Grant, Bull. B.O.C. iv. 1895, p. xxvii : Nassa, shores of Speke Bay, S.E. Victoria Nyanza, G.E.A.

a. ♀ ad. Kijabe, 6300 ft. Sept. 24.

b, c. ♂ ad. & juv. Mt. Suswa. Sept. 27.

d. ♀ ad. Amala River. Oct. 12.

e. ♂ ad. Lengototo, 6000 ft. Nov. 10.

All are in worn plumage ; one September and the October bird are moulting slightly.

The young male does not differ greatly from the adult ; there are some black markings on the buff of the neck ; the barring of the chest is rather narrower ; and the spurs are mere knobs.

Total length in flesh : ♂ 12-12½ inches ; ♀ 11¼-12 inches. Wing : ♂ 147-148 mm. ; ♀ 139-144 mm.

[♂ ♀ : Irides brown ; bill black, lower basal portion yellow ; legs and toes yellow or rich yellow. Very common and lies very close in bush country.]

3. *Francolinus sephæna grantii*. Capt. Grant's Francolin.

Francolinus grantii Hartlaub, P. Z. S. 1865, p. 665 ; Unyamuezi, G.E.A.

a, b, c. ♂ ♀ ad. S. Guaso Nyiro, 2900 ft. Nov. 22 & 23.

d. ♂ ad. Rift Valley, 20 miles S. of Baringo, 3800 ft. Dec. 24.

e. ♂ ad. Mt. Maroto, Maroto Stream, 3700 ft. Jan. 26.

The three November birds are in quite good plumage, and the female is moulting slightly. Both the December and January birds are somewhat worn.

Total length in flesh: ♂ 12–12½ & 13 inches; ♀ 11½ inches.
Wing: ♂ 144–141 mm.; ♀ 136 mm.

[Irides brown; bill black; legs and toes red. Abundant wherever found; occasionally perches in trees; very noisy.]

In naming these birds I have had to examine the series in the National Collection, and have come to the following conclusions in regard to the named races:—

FRANCOLINUS SEPHÆNA SEPHÆNA.

Perdix sephæna Smith, Rep. Exp. Cent. Africa, 1836, p. 55: Marikwa, *i. e.* Marico River, Transvaal.

A large race, having the chestnut spots of the lower neck extending to the chest; no chestnut streaks on rest of underparts. Wing: ♂ 175–162; ♀ 159–148 mm. One male from Coguno, Imhambane, Portuguese E. Africa, has the wing only 160 mm.

Range: Bechuanaland, Lake Ngami, Transvaal, Rhodesia, and Portuguese E. Africa (Imhambane Dist.).

FRANCOLINUS SEPHÆNA GRANTII.

Francolinus grantii Hartl. P.Z. S. 1865, p. 665, pl. 39, fig. 1 (top figure): Unyamuezi, G. E. Africa.

Of this I consider *F. roxana* (♂) Gray (List Gall. B. M. Mar. 6, 1867, p. 52: East Africa), *F. ochrogaster* Hartl. (J. f. O. 1882, p. 327: Upper Nile), wing given as 148 mm., *F. g. delutescens* Mearns (Misc. Coll. Smiths. Inst. Washington, vol. 56, no. 20, 1911, p. 3: base of Mt. Kenia), wing given as 146 mm. and said to be rather larger than either *F. grantii* or *F. ochrogaster*, and *F. s. jubaensis* Zedl. (Orn. Monatsb. 1913, p. 59: Afgoi, Jubaland), wing given as 146–136 mm. in ♂, and 143–132 in ♀, to be synonyms.

A small race, having the chestnut spots confined to the lower neck. Wing: G. E. Africa, ♂ 146–143, ♀ 140–135 mm., type given as 139 mm.; B. E. Africa, ♂ 150–139, ♀ 143–140 mm.; Uganda, ♂ 145–142, juv. 139–133, ♀ 139–133, juv. 132 mm.; Lado, ♂ 146, ♀ 135–134 mm.

Range: G. E. Africa, B. E. Africa, Uganda, and Lado; coast specimens from Melinda and Lamu, B. E. A.

FRANCOLINUS SEPHÆNA ICTEROPUS.

Francolinus icteropus Heugl. Sitzb. Ak. Wien, vol. xix, 1856, p. 303: Simehu, N. Abyssinia, *nom. nud.*; J. f. O. 1862, p. 412, 1st descrip.: wing given as $4.9'' = 125$ mm.; id. Orn. N. O.-Afr. vol. iii. 1873, p. 885: wing given as $5'' 10''' = 150$ mm., and mentions that the original type, a female, is in Vienna; see also Hartl. P. Z. S. 1865, p. 666, pl. 39. fig. 2 (lower figure) from a drawing by Heuglin. Of this I consider *F. spilogaster* Salvad. (Ann. Mus. Civ. Gen. vol. vi. 1888, p. 541: Harar, E. Abyssinia), wing given as 170 mm., and *F. schoanus* Heugl. (Orn. N. O.-Afr. iii. 1873, p. 891: Shoa, C. Abyssinia) must become synonyms.

F. icteropus Heugl. has always been placed under the synonymy of *F. erckeli*, but a careful examination of the description and of the measurements given, and especially of the plate in the P. Z. S. 1865, of which Heuglin himself says: "The drawing was made from the freshly killed bird, several specimens of *F. erckeli* and *F. gutturalis* being near me at the time," convinces me that it is an excellent representation of a female of the striped bellied form of the "*sephæna*" group of Francolins.

A rather large race, having the wing in Abyssinian specimens: ♂ 154-147, ♀ 149-146 mm.; Somali: ♂ 160-150 mm.

Range: Abyssinia and Somaliland.

I have now only two other names to deal with: *F. rovuma* (♀ part) Gray (List Gall. B. M. 1867, published Mar. 6, p. 52: Rovuma River, P.E.A.-G.E.A. border), which pre-occupies the *F. kirkii* Hartl. (P. Z. S. Nov. 14, 1867, p. 827: Zanzibar).

F. rovuma of Gray, although founded on two different birds, must go to the Rovuma River specimen by tautonymy, and the type, which is in the British Museum and is not sexed, is a bird with a striped belly. It is specimen "*a*" of Gray's List.

Hartlaub described his *F. kirkii* from a mutilated specimen, and gave as one character the "arrow-shaped black spots of upper tail-coverts," which points to an immature female, as does the wing-measurement of $5''$.

Herr Herman Grote, in the Orn. Monatsb. 1913, p. 73, speaking for German East Africa, says that at Mikiindani (which is on the coast a few miles north of the Rovuma River) he has taken some fifty of these Francolins, and all have been the form with the striped belly.

This "striped-bellied" form appears to occur principally along or near the coast, and where it occurs it agrees in wing-measurements with the inland "plain-bellied" form, *i. e.*: Beira, ♂ 153; Ruu River, Shiré, ♂ 146; Rovuma River, ♀ 137; Dar-es-Salaam, ♂ 149, ♀ 140; Kitwi, Ukamba, ♀ 140; Tana River, ♂ 148-140, ♀ 141-134 mm.; all these agree with the measurements of *F. s. grantii*. And Somali specimens, ♂ 165-155, ♀ 152-149 mm., agree with the measurements of the Abyssinian "plain-bellied" form. Thus it would appear that *F. s. sephæna* has no striped belly (coastal) form, but that both the east African and the Abyssinian forms have: the former, *F. s. grantii*, would have a coastal form under the name of *F. s. rovuma*, which occurs as far south as Beira, and the latter, which must bear the name of *F. s. schoanus*, would have a coastal form under the name of *F. s. icteropus*.

However, many more specimens are required before any definite conclusion can be come to, and I must remark that I have not seen specimens from Zanzibar, the type locality of *F. s. kirkii*, which may or may not be a separable race confined to the island.

4. *Francolinus uluensis*. The Machakos Francolin.

Francolinus uluensis O.-Grant, Ibis, 1892, p. 44: Machakos, Ulu, B.E.A.

a. ♂ ad. Lemek Valley, 6600 ft. Oct. 6.

b, c. ♂ ♀ ad. Lengototo, 6000 ft. Nov. 7.

All are somewhat worn and faded, and are therefore paler than some in the Museum collection.

Total length in flesh: ♂ $14\frac{1}{4}$ & $13\frac{3}{4}$ inches; ♀ $13\frac{1}{2}$ inches. Wing: ♂ 170 & 160 mm.; ♀ 161 mm.

[Irides brown; bill dark brown, basal half of lower mandible yellow; legs and toes dirty yellow or light yellowish brown. Common on dry stony ground; very noisy in the evenings.]

5. *Francolinus kikuyuensis*. The Kikuyu Francolin.

F. kikuyuensis O.-Grant, Bull. B. O. C. vi. 1897, p. xxiii : Kikuyu Dist., B.E.A.

a. ♂ juv. Mau, 9100 ft. Dec. 2.

Total length in flesh : $14\frac{1}{2}$ inches. Wing : 166 mm.

This is a young bird in first dress, and is just starting to assume the adult plumage. It differs from the adult in the narrower striping of the upper parts, the barring at the ends of the primaries (which are pointed as in all young birds of the partridge type), the barring of the outer tail-feathers, and the more barred appearance of the underparts. The new feathers appearing on the neck and throat partake of the dark buffiness of the adult. It differs from a young bird of *F. mulemæ* O.-Grant (Bull. B. O. C. xiv. 1903, p. 30 : Mulema, Uganda), obtained at the type locality, in being more narrowly streaked above and more finely barred below.

In the young of *F. shelleyi* O.-Grant (Ibis, 1890, p. 348 : Natal), to which at first this bird appears similar, the ends of the primaries are wholly ashy, as in the adult.

[Irides brown ; bill, upper mandible brownish horn, lower dirty yellow ; legs and toes dirty yellow. This single young specimen was shot from a covey of five, which was put up in a patch of long grass, bordered by junipers.]

6. *Francolinus clappertoni gedgei*. Gedge's Francolin.

Francolinus gedgei O.-Grant, Ibis, 1891, p. 124 : Elgon plains, B.E.A.

a. ♂ ad. Nakwai Hills, 3500 ft. Feb. 7.

b-d. ♂ ♀ ad. Kamchuru, Lobor, 3250 ft. Feb. 10-14.

These specimens agree perfectly with the type. One or two are showing signs of wear and all are moulting slightly.

Total length in flesh : ♂ $15\frac{1}{2}$ - $16\frac{1}{2}$ inches ; ♀ $14\frac{1}{4}$ inches.

Wing : ♂ 195-196 mm. ; ♀ 180-181 mm.

The range of this subspecies seems to be from Lake Victoria to about the border of Uganda and the Sudan, where it is replaced by *F. c. heuglini* Neum. (Orn. Monatsb. 1907, p. 199 : Meschr el Rek, Bahr el Ghazal), which is

quite a good subspecies and extends northwards to at least Fashoda on the Nile.

From Kordofan westwards to Lake Chad, the true *F. c. clappertoni* Childr. (in Denh. & Clapp. Trav. App. 1826, p. 198 : Bornu, near Lake Chad), takes its place.

As might be supposed, where these subspecies overlap specimens bear the characters of both, and this is well exemplified in a bird from Goz-abu-Gumar, on the White Nile, about a third of the way between Kaka and Khartoum, which has the back of *F. c. clappertoni* and the underparts of *F. c. heuglini*.

In the Misc. Coll. Smiths. Inst. Washington, vol. 56. no. 20, 1911, p. 3, Mearns has described a new Francolin under the name *Fraucolinus grisescens*, and gives the type locality as Lokko Zegga, Uganda. It is allied to *F. clappertoni*, but I am quite unable to place it from the description, and should not be surprised to learn that it is similar to *F. c. gedgei*.

[♂ ♀. Irides brown, bare skin red ; bill black, reddish at base (one male is also very red on the nostrils) ; legs and toes red, darker in front. Not abundant, only small coveys seen in millet fields.]

7. *Fraucolinus icterorhynchus emini*. Emin's Francolin.

Fraucolinus icterorhynchus emini Neumann, Orn. Monatsb. 1907, p. 198 : West of Albert Nyanza.

a. ♂ ad. Falabek, 2800 ft. Feb. 23.

In slight moult.

Total length in flesh : $15\frac{1}{2}$ inches. Wing : 178 mm.

Males in the Museum collection from Tingasi, near the Welle River, measure 174 and 176 mm. in the wing, others from Uganda have the wing 175–187 mm., and one from Ruwenzori is 180 mm. Two females from Uganda have the wing 180 and 183 mm.

Four specimens of the true *F. i. icterorhynchus* Heugl. (J. f. O. 1863, p. 275 : Bongo, Bahr el Ghazal), in the Boyd Alexander collection, have the wing in two males 162 and 166, and in two females 159 and 167 mm.

The birds from Uganda are rather longer in the wing than those from the type-locality, but as some intergrade with the western birds, it simply shows that *F. i. emini* is quite a good subspecies, and that the range of wing-measurements is from 174–187 mm., as against 162–167 mm. in *F. i. icterorhynchus*.

[Irides brown, eyelids yellow, bare skin behind eye yellow ; bill black, yellow at base ; legs and toes dusky orange. Found in long grass in well wooded country.]

8. *Francolinus hildebrandti altumi*. Altum's Francolin. (Plate II.)

Francolinus altumi Fisch. & Rehw. J. f. O. 1884, p. 179, pl. ii. : Lake Naiwasha, B.E.A.

a. ♂ ad. Mt. Suswa. Sept. 26.

b. ♂ juv. Lemek Valley, 6500 ft. Oct. 7.

c. ♂ ad. E. of Mt. Leganisho, 6600 ft. Oct. 31.

The October adult is rather paler above (owing to fading) and more worn than the September one.

[*Adult* : Irides brown ; bill black, lower and base of upper mandible orange ; legs and toes red, claws horn.

Juv. : Irides brown ; bill horn, base of lower mandible light horn ; legs and toes red.]

Total length in flesh : Ad. 15 inches. Weight 1 lb. Wing : 189 and 198 mm. Total length in flesh : Juv. $13\frac{3}{4}$ inches. Wing : 163 mm.

The young bird is apparently in first dress, and below is more the colour of the female, with the spotted appearance of the adult carried throughout, but mostly of a more brownish black, less apparent on the breast and abdomen. Above it is rather paler than the adult, is mottled with black, and has no spurs. It is generally much darker than a young male from Nyasaland.

There are in the Museum collection two adult males and three adult females, taken in British East Africa at Gilgil River, Morendat River, and Lake Elmenteita, and in the Jackson collection two adult males from Elmenteita and



FRANCOLINUS HILDEBRANDTI ALTUMI. ♀

Naivasha, and one young female from southern Sotik, all of which fall into this subspecies.

Fischer & Reichenow's plate of the male, if carefully compared with birds from British East Africa and German East Africa, is found to agree more with the birds from the former country and might have been taken from the specimen collected by Lord Delamere at the Morendat River, Naivasha Dist., on December 27, 1899.

The female now figured (Plate II.) is a specimen in the British Museum collected by Lord Delamere, at the same place and on the same date.

On the average, the male is rather darker above (less rufous), and more white (less buff) than males of either *F. h. hildebrandti* or *F. h. johustoni*; also there is some difference in the spotting and streaking of the under parts, especially of the flank feathers.

It is, however, with the female that the most striking differences occur, and as I cannot find any description of it, I give the following :—

Adult female of *F. h. altumi*. Above similar to adult male; considerably greyer on the top of the head and nape than the females of *F. h. hildebrandti* or *F. h. johustoni*. Sides of the head and throat whiter and greyer (much less buffy), and the former more distinctly streaked than females of the other two races. Below much paler, with the neck, chest and flanks very distinctly spotted and mottled with blackish, in contradistinction to the uniform cinnamon-brown of the females of the other two races.

There are, therefore, three distinct and well marked races of this Francolin as follows :—

F. h. hildebrandti Cab. J. f. O. 1878. p. 206, pl. iv. (of an adult female showing the clear neck and chest and light cheeks): Zanzibar, Mombasa and further inland. Zanzibar apparently an incorrect locality.

Range. German East Africa. Specimens in the Museum collection from Kilimanjaro and Usari River.

F. H. ALTUMI Fisch. & Rehw.

Range. British East Africa.

F. H. JOHNSTONI Shelley, Ibis, 1894, p. 24 : Milanji Hills.

Range. Nyasaland. Specimens in the British Museum collection from Nyasaland.

9. *Francolinus schuetti schuetti*. Schuett's Francolin.

Francolinus schuetti Cabanis, J. f. O. 1881, p. 351 : Lunda, borders of Angola, and the Belgian Congo.

a. ♂ ad. Amala River, 5300 ft. Oct. 24.

Slightly worn and moulting.

Total length in flesh : 141½ inches. Wing : 176 mm.

[Bill red ; legs and toes red. Shot in dense bush near water.]

In naming this bird I have found it necessary to examine the whole of the specimens in the National Collection, and I cannot see more than two races of this Francolin, and therefore do not agree with Mearns (Misc. Coll. Smiths. Inst. Washington, vol. 56, nos. 14 & 20, 1911) that there are five races.

Besides the specimen above enumerated, there are in the Museum collection two birds from Chaya, Belgian Congo, four from Ruwenzori, and nine from Uganda ; all of which fall in together and are indistinguishable both in size and colour.

Wing in ♂ 181-168 mm. ; ♀ 163-156 mm.

Unfortunately I have not been able to examine birds actually from Lunda, but taking the two specimens from Belgian Congo as typical (and they agree well with the coloured plate, J. f. O. 1881, pl. ii.), there should be one race (*F. s. schuetti*) from the Congo basin across Uganda to the *west* of the Rift Valley and down the east side of Lake Victoria.

If, however, Lunda specimens should prove to be different, which I doubt, then *F. s. zappeyi* Mearns would range from the Congo divide to the Rift Valley.

Of the other race, the Museum possesses two from Mt. Kenia, two from Kikuyu, one from Nairobi, two from B. E. A. probably the Athi River (Drake-Brockman), and seven from

Kilimanjaro; all these are so close to each other, that I fail to see any distinguishing characters.

There appears, therefore, to be one race from Mt. Kenia southward along the east side of the Rift Valley to Kilimanjaro, which will bear the name of *F. s. maranensis* Mearns.

Wing: ♂ 186–166 mm.; ♀ 175–166 mm.

One of the two Drake-Brockman males measures 191 mm. in the wing, but this appears to be an exceptional bird.

With this race the males are on the average darker below than the females; but with the other race (*F. s. schuetti*) no difference is apparent in colour between the sexes.

The races and synonymy I admit at the present time are:—

FRANCOLINUS SCHUETTI SCHUETTI Cab.

Francolinus schuetti zappeyi Mearns (Misc. Coll. Smiths. Inst. Washington, vol. 56, no. 20, 1911: East shore of Lake Victoria) is a synonym.

FRANCOLINUS SCHUETTI MARANENSIS Mearns: Maranu, Mt. Kilimanjaro. Of this form I consider *F. s. kapitensis*: Athi River, B. E. A., and *F. s. keniensis*: Mt. Kenia, B. E. A., of Mearns (op. cit. no. 14, p. 2), as synonyms.

FRANCOLINUS SCHUETTI TETRAONINUS Blund. & Lovat, Bull. B. O. C. vol. x. 1899, p. 22: Mendi, Abyssinia.

This race, judging by the specimens before me, appears to be a good one, though a much larger series is required to make sure.

10. *Francolinus jacksoni*. Jackson's Francolin.

Francolinus jacksoni O.-Grant, Ibis, 1891, p. 123: Kikuyu, B.E.A.

a. ♂ ad. Mau, 9100 ft. Dec. 2.

In rather worn plumage.

Total length in flesh: $20\frac{1}{4}$ inches. Weight: $2\frac{1}{2}$ lbs. Wing: 245 mm.

[Irides brown, eyelid red, bare skin behind eye yellow; bill red; legs and toes red, sides of tarsi blackish, spurs black. This species was only met with late in the evening, after crossing the Mau Escarpment. It appeared to be common on steep grassy slopes devoid of bush.]

11. *Pternistes leucoscepus infuscatus*. Cabanis' Bare-throated Francolin.

Pternistes infuscatus Cab. J. f. O. 1868, p. 413: Lake Jipe, British-German Border, S. of Kilimanjaro.

a. ♂ juv. Narossura, 6400 ft. Nov. 2.

b, c. ♂ ♀ ad. 12 miles N.W. of Baringo, 3000 ft. Dec. 29.

d. ♀ ad. Mt. Maroto, 3700 ft. Jan. 26.

All are in good plumage, and both the females are rather darker above than the adult male.

The young is apparently in first plumage, having the tail distinctly barred and dark mottlings on the inner secondaries and coverts (these parts being finely speckled in the adult); below, the markings are narrower, giving the young a much darker appearance than the adult. It has no spurs.

Total length in flesh: ♂ 19 inches; ♀ 15½ inches. Wing: ♂ 212 mm.; ♀ 197 & 193 mm. *Juv.* Total length in flesh: 16 inches. Wing: 201 mm.

[*Ad.* Irides brown; bill black, lower basal half orange; bare skin round eye and upper throat red, lower throat yellow.

Juv. Irides brown; bill black; bare skin round eye and throat red, lower neck yellow; legs and toes black.

Several coveys of about fifteen birds each were seen along the rivers; they were very shy and escaped by running.]

In naming these birds I have found it necessary to examine the whole group, and have come to the following conclusions:—

PTERNISTES LEUCOSCEPUS LEUCOSCEPUS (Gray, List Gallinæ Brit. Mus. 1867, p. 48, descr. nulla); Heuglin, Orn. N.O.-Africa, vol. iii. 1873, p. 899.

It appears that Heuglin's is the first description of this race, so that his name should stand as the author.

Gray, however, gives the locality as Abyssinia, and as Heuglin's description is based on Gray's name this locality can stand.

There are specimens in the British Museum from the Lebka Valley, Koomayli, Rairo, Sahati and Zoulla; all in Eritrea.

P. L. INFUSCATUS Cab. J. f. O. 1868, p. 413 (Reise Ost-Afrika, v. d. Decken, vol. iii. 1869, pl. xiv. p. 44): Lake Jipe, Anglo-German border, S. of Kilimanjaro.

P. l. kilimensis Mearns (Misc. Coll. Smiths. Inst. Wash. vol. 56, no. 20, 1911, p. 2: Kilimanjaro Region) is a synonym, inasmuch as the type locality of *P. l. infuscatus* is within the Kilimanjaro region; I can see no difference between birds from there and from through Brit. East Africa and Uganda to Mt. Maroto.

Range. From Mamboio north to Mt. Maroto, and near to Mt. Kenia.

P. L. MUHAMED-BEN-ABDULLAH Erl. Orn. Monatsb. vol. xii. 1904, p. 97: S. Somaliland (Lorian flats).

This is quite a good subspecies, having the underparts of *P. l. leucoscepus* and the upper parts of *P. l. infuscatus*.

Range. Somaliland.

P. L. HOLTEMULLERI Erl. op. cit. p. 98: S. Shoa.

No specimens examined.

P. L. KENIENSIS Mearns, op. cit. p. 1: west slope of Mt. Kenia.

In his description Mearns gives as diagnostic features: "in the absence of transverse bars on the wings and tail, which, instead of being *barred*, are minutely *speckled* and *vermiculated*." The italics are mine.

The barring of the wings and tail is a character of immaturity, while the speckling and vermiculations are features of the adult bird in every race. Consequently I see no valid reason on Mearns's data for separating this race, that worker having obviously confounded the young and the old birds.

Nevertheless the one specimen from the type-locality before me is certainly much more ochreous than any specimens of the other races, and therefore I have maintained the subspecies for the present.

One specimen of *P. l. infuscatus* from Kitwi, B.E.A., shot on Oct. 13, 1898, is very broadly marked, especially on the back, and approaches the true *P. l. leucoscepus* in this respect.

12. *Coturnix coturnix africana*. The African Quail.

Coturnix vulgaris africana Temm. & Schl. F. Jap. 1850, p. 103: "La pointe australe d'Afrique."

a. ♀ ad. Kikuyu. Sept. 22.

In clean dress and very little worn.

Total length in flesh: 8 inches. Wing: 109 mm.

[Irides light brown; bill brownish fawn; legs and toes flesh-colour. Very common.]

13. *Coturnix delegorguei*. Delegorgue's Quail.

Coturnix delegorguei Deleg. Vog. Afr. Austr. ii. 1847, p. 615: Onry River, *i. e.* Upper Limpopo, Transvaal.

a, b. ♂ ♀ ad. Amala River, 5500 ft. Oct. 11.

Both are rather worn and faded.

Total length in flesh: ♂ & ♀ 7 inches. Wing: ♂ 93 mm.; ♀ 98 mm.

[Irides brown; bill bluish horn, lighter in female; legs and toes flesh-colour. Probably more plentiful than it appears to be.]

14. *Ptilopachus fuscus florentiæ*. East African Grey Francolin.

Ptilopachys florentiæ O.-Grant, Bull. B. O. C. vol. x. 1900, p. cvii: Gessema Laikipia, B.E.A.

a. ♂ ad. Mt. Maroto, 6000 ft. Jan. 27.

b-d. ♂ ♀ ad. Nakwai Hills, 3800 ft. Feb. 6.

All are in good plumage and agree perfectly with the type.

The three males have the breast-patch distinctly more buffy (richer) than in the female, in which it is more stone-colour.

Total length in flesh: ♂ $11\frac{3}{4}$ –11 inches; ♀ $11\frac{3}{4}$ inches. Wing: ♂ 122–129 mm.; ♀ 127 mm.

I do not think that *P. f. keniensis* Mearns (Misc. Coll. Smiths. Inst. Washington, vol. 56, no. 20, 1911: Mt. Kenia) can stand as a subspecies, as the differences given by Mearns between this race and *P. f. florentiæ* are the characters of the latter, especially the "nape and mantle

without any chestnut whatever," which agrees perfectly with the type specimen of *P. f. florentiæ*, now before me.

[Irides brown; bill yellowish horn, base and nostrils red, black or brown stripe between nostrils; eyelids and bare skin red; legs and toes red.]

A small covey of this Francolin was found in a dense thicket on a stony hillside on Mt. Maroto; they were shy and difficult to procure. In the Nakwai Hills they were more plentiful. They scale the steepest rocks with ease, and only take flight when forced.]

15. *Numida reichenowi*. Reichenow's Guinea-Fowl.

Numida reichenowi O.-Grant, Ibis, 1894, p. 535: Makarungu, Ukambani Dist., B.E.A.

a-d. ♂ ♀ ad. & juv. Loita, 6300 ft. Oct. 5.

e-g. ♂ juv. Amala River, 5500 ft. Oct. 10-11.

h-j. ♂ ♀ ad. & juv. Lengototo, 6000 ft. Nov. 8.

In the adults there are two males and two females, the former having distinctly longer helmets than the latter.

They are in quite good clean dress and only one, a November bird, is showing any signs of moult.

All the young are fully grown, and except for showing a somewhat browner tinge on the mantle and being on the average smaller spotted below, do not differ in plumage greatly from the adults, except that in all the helmet is small.

Three of the six are in moult, and appear to be assuming the clearer plumage of the adult.

Total length in flesh of adults: ♂ 24-24½ inches; ♀ 22½-23½; the weight varies between 3 and 3¾ lbs.; some young only weigh 2½ lbs. Wing in adults: ♂ 298-299 mm.; ♀ 284-293 mm.

[*Adult.* ♂ ♀. Irides brown; bill greenish or reddish horn, lighter at tip; neck black, sides, around eyes, and upper throat bright blue, above eyes black; wattles and around nostrils red; top of head and helmet reddish horn, lighter at tip; feet black.]

Young. Irides brown, bill black, tip light horn; wattles, top of head, and helmet black; neck bluish black; feet black; in rather older birds, the wattles and nostrils are red and the helmet blackish brown.

Common, and found in flocks of fifty or more. When disturbed they take to high trees, where they are easily shot.]

16. *Numida ptilorhyncha major*. Hartlaub's Tufted Guinea-Fowl.

Numida major Hartl. Abh. Bremen, vol. viii. 1883, p. 217: Wakkala, Uganda.

a-f. ♂ ♀ ad. Kozibiri River, 2400 ft. Jan. 21.

g. ♂ imm. Mt. Maroto, 3700 ft. Jan. 24.

h. ♂ ad. " " " 30. [Head only.]

i. ♂ ad. Bakoro, 25 miles E. of Lobor Mts. Feb. 3. [Head only.]

j. ♀ ad. Kittigom, China. Feb. 20. [Head only.]

k. ♂ ad. 40 miles S. of Gondokoro, 2000 ft. March 2.

Total length in flesh: ♂ 23-23½ inches; ♀ 21¼-22¾ inches. Wing: ♂ 282-262 mm.; ♀ 270-267 mm. Weight: ♂ 3 lbs.; ♀ 2½ lbs. Immature. Total length in flesh: 22 inches. Wing 259 mm.

All are in good plumage, and one or two are moulting.

The immature bird is not in first dress, and, except for the immature appearance of the head, might be an adult.

Some of the nasal tufts are quite equal in size to those of *N. p. ptilorhyncha* and *N. p. somaliensis*.

[*Adult.* Irides brown; bill, upper mandible red, tip and lower mandible light or yellowish horn; neck black or bluish black; wattles and stripe on neck blue; legs and toes dark brown.

Imm. Irides brown; bill dark brown, tip light horn; wattles and bare skin bluish flesh; helmet brown; legs and toes brown.

Found in flocks of twenty or thirty in dry bush country.]

17. *Numida ptilorhyncha rendilis*. Baringo Tufted Guinea-Fowl. (Text-figure 1, p. 28.)

Numida ptilorhyncha rendilis Lönnb. K. Sven. Vet.-Ak. Handl. 1911, p. 47: between the Meru and the Rendiles, B.E.A.

Numida ptilorhyncha baringoensis Claude Grant. Bull. B. O. C. vol. xxxiii. 1914, p. 111: 20 miles S. of Lake Baringo, Rift Valley.

a. ♀ juv. Baringo Road, 30 miles from Nakuro, 5200 ft. Dec. 22.

b, c. ♂ ad. 20 miles south of Baringo, 3800 ft. Dec. 24.

d, e. ♂ ad. 12 miles N.W. of " " " 29.

[Heads only.]

f. ♂ ad. Turkwel River. Jan. ? [Head only.],

All are in quite good plumage, the young bird differing from the adults in being rather smaller spotted and having a distinct rusty wash throughout.

Total length in flesh: ad. $22\frac{3}{4}$ & 24 inches; juv. 21 inches. Wing: ad. 277 & 267 mm.: juv. 262 mm.

[Ad. Irides brown; bill reddish brown, lower mandible and tip of upper greenish horn; neck black, below eye and wattles blue; legs and toes black.

Juv. Irides brown; bill bluish horn, red at base; legs and toes blackish brown; neck blackish flesh, side-wattles and round eye blue, horn dirty reddish; nasal wattles reddish yellow.

Very abundant. Large flocks found in the evening scratching on the open plains and raising a cloud of dust.]

In working out these birds I came to the same conclusion about the Baringo Guinea-Fowl as has Lönnberg in his excellent resumé of the named races, but having unfortunately overlooked his description I redescribed his new race, and therefore my *N. p. baringoensis* becomes a synonym of his *N. p. rendilis*.

In this collection there are six specimens, in the Museum collection one, and in the Jackson collection two heads (from Kamassia), all from the Rift Valley, and all except the young bird have well-developed helmets approaching closely those of the *N. coronata* group.

The one adult female I have examined, a head from Kamassia, shows that the helmet is smaller than in the males, but is strongly and well formed, as opposed to the weakly formed helmet of its allies.

Even the young bird has the helmet far more developed than in young birds of its allies, in fact the helmet is equal in size to that of many adults of the other races.

The head from the Turkwel River undoubtedly belongs to this race, so that it is probable that it ranges somewhat into the country of *N. p. major*.

In naming this race I have had occasion to examine the whole of this group of Guinea-Fowls, and I have to thank Mr. Rothschild and Dr. Hartert for the loan of thirty specimens from Tring, which, combined with material in the National Museum, have given me a hundred specimens of this group for examination, and these from localities which cover the whole of its known range.

The races I am able to recognise are as follows:—

N. p. PTILORHYNCHA Less. *Traité d'Orn.* 1831, p. 498 : founded on the specimen enumerated by Licht. *Nom. Av. Mus. Zool. Berol.* 1854, p. 86 : Abyssinia, I designate Mareb River, N. Abyssinia.

This race is well-feathered up the back of the neck.

Wing : ♂ 272–250 mm. ; ♀ 270–245 mm.

Range. Suakim south to N. Abyssinia.

Specimens examined from Sanafe ; Arallé ; Abu Amba ; Koomayli ; Rorat ; Eritrea ; Anseba Valley ; Adarte, Mareb River, and Ghadi Saate in Habesch. 14 in all referable to this race.

NUMIDA PTILORHYNCHA MAJOR Hartl. *Abh. Bremen*, vol. viii. 1883. p. 217 : Wakkala, Uganda.

N. p. macroceras Erl. *Orn. Monatsb.* 1904, p. 97 : Lake Rudolf.

N. p. neumanni Erl. *Orn. Monatsb.* 1904, p. 97 : Kwa Mlamba, Usogo, Uganda.

N. p. omoensis Neum. *J. f. O.* 1904, p. 407 : Koscha, the valley of the Omo River and its tributaries.

N. p. toruensis Neum. J. f. O. 1904, p. 410: Mokia River, Toru.

All these appear to be synonyms. I have examined sixty-five specimens referable to *N. p. major*, including the types of *N. p. omoensis* and *N. p. toruensis*, and cannot find any characters that will distinguish these five races; so I have been compelled to place them all under *N. p. major*.

This race is similar in size and colour to *N. p. ptylorhyncha*, but is less feathered on the neck, and on the average has smaller face-wattles.

Wing: ♂ 285–255 mm.; ♀ 273–244 mm.

Range. West of Rift Valley to the Lakes and Ruwenzori; south to the German border, north to Kaka, White Nile, Ibago, Baro River, and Lake Suai.

Specimens examined from:—Kaka, White Nile; Gondokoro; Lake Suai, Lake Stephanie; Ibago, Baro River; Uma River E. of Lake Tata; Konso, nr. Lake Abaya; Koseha, nr. Omo River; Gelo, Lake Tata; Gofa, nr. Koseha; Abaya Lake; Male; Turkwel River; Kozibiri River; Mt. Maroto; N. Lohor; Mubinde, Unyoro; Butiaba, Unyoro; Toru; Chua; Semliki River; Usoga: Entebbe; Ruwenzori; Ankole; Buddu; Victoria Nile; Mabira Forest; Busoga; King's Lake, Kampala; Mt. Elgon; Kavirondo; Wero Tero.

NUMIDA PTYLORHYNCHA SOMALIENSIS Neum. Orn. Monatsb. 1899, p. 25: Somaliland (*Hawker*); cf. Ibis, 1899, p. 52, Hawker's trip to N.W. British Somaliland.

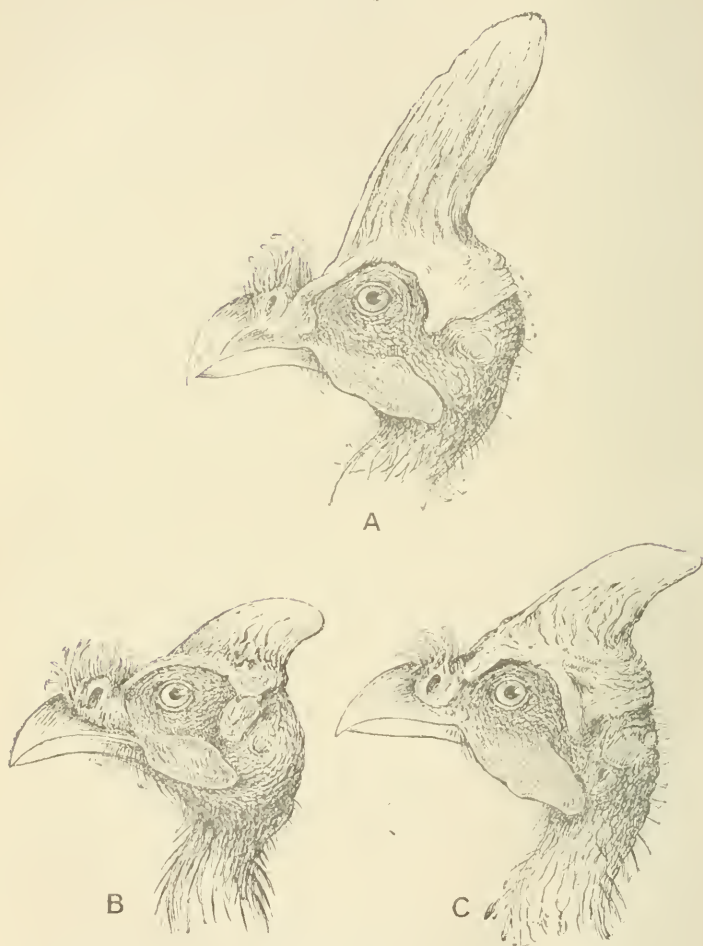
This race is quite distinct, having a *red* tip on the face-wattles, and is about equal in size and colour to the other races.

Wing: ♂ 286–274 mm.; ♀ 275–263 mm.

Range. Somaliland, Gallaland, and part of Jubaland to the Lorian Swamp. I have recently examined a specimen of this race in the collection of Col. Clarke shot at Loiola, north Kenia district, which agrees perfectly with true *N. p. somaliensis* and brings the range much further west.

Nine specimens examined from Waghar and Ogo, Somaliland; Kafra, Gallaland; and Wajheir, Jubaland.

Text-fig. 1.



Heads of Baringo Tufted Guinea-Fowl (*Numida ptilorhyncha rendilis* Lönnberg).

- A. Largest specimen in the Museum collection.
- B. Adult female from Kamassia, Rift Valley (Jackson collection).
- C. Adult male from Rift Valley, type of *N. p. baringoensis* C. Grant.

NUMIDA PTILORHYNCHA RENDILIS Lönnberg. (Text-figure 1.)

Equal in size and colour to the other races, but having a distinctly larger helmet.

Wing : ♂ 267–265 mm. ; ♀ juv. 262 mm.

Range. Throughout the Rift Valley to the lower Turkwel River, and eastwards to the Meru district.

Nine specimens examined.

This large series of the Tufted Guinea-Fowls show that no great reliance can be placed either on the nasal tuft, the size of the bird, or the colour of the plumage.

With the nasal tufts great variation occurs, and birds from Uganda have them quite as well developed as birds from north Abyssinia and *vice versa*, i. e. birds from north Abyssinia have quite as small ones as birds from the farthest south.

I at first thought that some stress could be laid on the colour of the tufts, but on receiving the series from Tring I found that birds from the same locality have both white and red tufts.

It is, however, worthy of notice that all the specimens so far seen of *N. p. somaliensis* have *white* and well developed tufts.

Why the nasal tufts are white in some specimens and red in others still needs explanation ; it may be due to age, but does not appear to be due to season, as specimens killed in the same month and in the same district, have both white and red tufts.

For instance, one from Gofa has a reddish tuft, and one from Konso has a white tuft ; both were taken in August, and instances again occur in February and May.

The supposed distinguishing character of *N. p. neumanni* is said to be a red tip to the face-wattles, but in all the specimens examined from the typical locality—♀. Mlamba (Usoga), wattles blue ; ♀. Mtanda (Usoga), “wattles blue with a few brown specks along lower edge”—the wattles are invariably entirely blue, as in birds from the type locality of *N. p. major*.

In the Museum collection there are three specimens of this group from the Congo Valley, two from Tingasi and one from Poko, which, though in all respects similar to *N. p. major*, appear to have the face-wattles smaller and narrower, and less projected beyond the posterior attachment.

Four (two males and two females) in the Boyd Alexander collection, from the Lake Chad district, are similar to *N. p. major*, and do not bear out so well this character of the wattles.

Until, however, further material comes to hand to show whether or not this character is constant, I provisionally place them under *N. p. major*; though, should the Congo bird prove to be a distinct race, it would bear the name of *N. p. incernis* Dubois (Ann. Mus. Congo, i. 1905, p. 19 : Upper Congo).

In the Orn. Monatsb. 1911, p. 82, Reichenow described a Guinea-Fowl of this group under the name of *Numida strasseui*, and gives the type-locality as "Duma am unteren Ubangi." It seems to me this will prove to be a synonym of *N. p. incernis*.

The male from Lake Stephanie has a distinctly longer helmet than other specimens of *N. p. major*, but is quite differently shaped to that of *N. p. rendilis*.

There is also one specimen of *N. p. somaliensis* from Wajheir that has the helmet exceptionally long, which is in shape like the bird from Lake Stephanie.

One specimen of *N. p. somaliensis* from Kafra shows little indication of the red tip of the wattles.

18. *Turnix lepurana*. Smith's Button-Quail.

Ortygis lepurana A. Smith, Rep. Exp. App. 1836, p. 55 : "country north of Kurrichane," W. Transvaal.

a. ♂ ad. Mt. Suswa. Sept. 27.

In good dress and not worn.

Total length in flesh : $5\frac{3}{4}$ inches. Wing : 77 mm.

[Irides yellow ; bill blue ; culmen brown ; legs and toes flesh-colour. Several seen.]

19. *Pteroclorus exustus ellioti*. Elliot's Sand-Grouse.

Pterocles ellioti Bogd. Bull. Ac. Sci. Pétersb. xxvii. no. 2, 1881, p. 167 : Abyssinia.

a. ♂ ad. Rift Valley, 30 miles N.W. of Baringo, 2800 ft. Dec. 29.

In good plumage and not worn. A rather pale specimen, very close to some Indian birds, but having richer coloured wing-coverts.

Total length in flesh : $12\frac{1}{2}$ inches. Wing : 171 mm.

[Irides brown ; bill bluish white ; toes dirty grey. Several large flocks seen.]

In naming this bird I have had occasion to examine the whole series of the *exustus* group, which appear to comprise the following races :—

PTEROCLURUS EXUSTUS EXUSTUS Temm. Pl. Col. v. 1825, pls. 354, 360 : west coast of Africa, Senegal.

Egyptian specimens may be taken as typical, and these are large and dark in colour. Males dark above and white wing-spot distinct ; females dark and well marked.

Wing : ♂ (4 measured) 195–184 mm. ; ♀ (5 measured) 187–170 mm.

Range. Senegal to Egypt.

PTEROCLURUS EXUSTUS ELLIOTI Bogd. op. cit.

P. e. somalicus Hartert (Nov. Zool. 1900, p. 28 : Milmil, Somaliland) is a synonym.

Small, richer in coloration, especially on the greater wing-coverts. More white on the average on the tips of the 6th–10th primaries.

Wing : ♂ (12 measured) 184–171 mm. ; ♀ (10 measured) 175–165 mm.

Range. Abyssinia, Somaliland, B.E.A., west to Lake Chad.

Two males and three females from Kilimanjaro are much darker than normal specimens of *P. e. ellioti*, especially the females, but without further material I refrain from doing anything with them, especially as some males from

Somaliland are almost exactly similar to these Kilimanjaro males, and in between there are specimens from Brit. East Africa, that are much lighter in colour. They agree well with the description of *P. e. olivascens* Hartert (Orn. Monatsb. 1909, p. 183 : Campi-ya-Simba, Masailand).

PTEROCLURUS EXUSTUS ORIENTALIS Hart. Nov. Zool. 1900, p. 28 : India (no exact locality given).

Of the same size as *P. e. elliotti*. On the average less rich in colour, especially on the greater wing-coverts. Less white on the average on the tips of the 6th-10th primaries.

Wing : ♂ (33 measured) 187-167 mm. ; ♀ (37 measured) 179-161 mm.

Range. India generally.

A pair of birds from Arabia in the Museum collection appear to belong to this race, but these, if distinct, should be referred to *P. e. erlangeri* Neum. (Orn. Monatsb. 1909, p. 154 : El Hota, Lahadlj, S. Arabia).

20. *Pterocles decoratus decoratus*. Decorated Sand-Grouse.

Pterocles decoratus Cab. J. f. O. 1868, p. 413 : Lake Jipe, Anglo-German boundary, cf. von der Decken Reise Orn.-Afrika, iii. 1869, p. 43, pl. xiii.

a. ♂ ad. Southern Guaso Nyiro, 3100 ft. Nov. 23.

Showing signs of wear.

Total length in flesh : 10 $\frac{1}{4}$ inches. Wing : 166 mm.

[Irides yellow ; bill yellow ; feet yellow. Stomach contained seeds of a leguminous plant. A few of these birds were seen coming to drink at about 10 A.M. No others were observed.]

21. *Pterocles lichtensteinii sukensis*. Neumann's Sand-Grouse.

Pterocles lichtensteinii sukensis Neum. Orn. Monatsb. 1909, p. 153 : Turquel, Suk Country, B.E.A.

a, b. ♂ ♀ ad. & juv. Turkwel River, 1900 ft. Jan. 14.

c. ♂ ad. Kozibiri River, 2400 ft. Jan. 20.

All are in good plumage. The young female still retains the mottled sandy tips to the flight-feathers ; though

in general colour it agrees perfectly with two adults in the Jackson collection from Lake Hannington.

The male from the Turkwel River is much richer in colour than the male from the Kozibiri River.

Total length in flesh : ♂ $11\frac{1}{4}$ & $11\frac{3}{4}$ inches ; ♀ 11 inches.

Wing : ♂ 189 & 172 mm. ; ♀ 182 mm.

The Kozibiri male is smaller in the wing than the other and is moulting, so that the paler colour is probably somewhat due to fading.

[♂. Irides brown, bare skin below eyes yellow, above eyes green ; bill yellowish brown (Kozibiri), reddish green (Turkwel) ; feet yellow or dull yellow (Kozibiri).

♀. Irides brown ; bare skin pale yellow ; bill black ; feet yellow.

When the natives had finished watering their live-stock, enormous flocks of this Sand-Grouse came to drink after dark in the wells in the river-bed. It was most interesting to watch this steady stream of birds entering and leaving these deep holes, and that there were no collisions was marvellous.]

In naming these birds I have had to examine all the available specimens of *P. lichtensteinii*, and have come to the following conclusions regarding the distribution and races :—

PTEROCLES LICHTENSTEINII LICHTENSTEINII Temm. Pl. Col., v. 1825, pls. 355, 361 : Nubia.

P. l. hyperythrus Erl. (J. f. O. 1905, p. 94, pl. iv. : Dana River, S. Somaliland) is a synonym.

Range. Coast of Red Sea, Eritrea, Abyssinia, Somaliland. Females rather richer sandy.

Wing : ♂ (9 measured) 175–186 mm. ; ♀ (6 measured) 169–186 mm.

PTEROCLES LICHTENSTEINII ARABICUS Neum Orn. Monatsb., 1909, p. 152 : Lahadj, South Arabia.

Both sexes considerably paler (more stone-colour and markings above somewhat less broad) than in true *P. l. lichtensteinii*.

Range. Arabia, Muscat, and India west of the Indus.

Wing: Arabia, ♂ (7 measured) 174–189 mm.; ♀ (2 measured) 170–186 mm. Muscat, ♂ (1 measured) 170 mm. India, ♂ (2 measured) 171–176 mm.; ♀ (2 measured) 167–172 mm.

PTEROCLES LICHTENSTEINII SUKENSIS Neum. op. cit.

Males rather darker above than in *P. l. lichtensteinii*; females considerably darker above and below, dark markings very broad, light markings much deeper in tone.

Range. Uganda and B.E.A.

Wing: ♂ (4 measured) 180–197 mm.; ♀ (2 measured) 177 mm.

Since writing the above I have been able to examine five males and four females of this race collected by A. Blayney Percival in British East Africa, which agree perfectly with the other specimens of this race, and which further show that the cross-barring on the belly of the males is much more defined and clear than in males of either *P. l. lichtensteinii* or *P. l. arabicus*.

The wings of these nine specimens measure: males 175–187 mm.; females 171–185 mm.

22. *Pterocles quadricinctus lowei*. Lowe's Four-banded Sand-Grouse.

Pterocles quadricinctus lowei Claude Grant, Bull. B. O. C. vol. xxxv. 1914, p. 19: Renk, White Nile.

a. ♂ juv. N.E. slope, Nakwai Hills, 3600 ft. Feb. 8.

b. ♀ ad. Kittigom, Chua, 2850 ft. Feb. 21.

Total length in flesh: ♀ 11½ inches. Wing: ♂ 186 mm.; ♀ 179 mm.

[♀. Irides brown; bare skin yellow; bill black, base yellowish; feet yellow. ♂. Feet yellow.

This Sand-Grouse was common.]

This subspecies differs from the true *P. q. quadricinctus* in its larger size, darker and broader markings of the upper surface, and generally richer tone throughout. On the crown the streaks are more clearly defined and broader, and the white markings on the forehead are perhaps slightly broader.

On comparing two young males, one from Senegal and the other from Uganda, the same differences are apparent; the eastern bird being considerably darker and broader in the markings of the upper surface and having more black on the belly; this latter may, however, be only individual.

Wing: ♂ (6 ad. measured) 183–201 mm.; ♀ (4 ad. measured) 177–187 mm.

Type. ♂ ad. Renk, White Nile. 12.v.1901. R. M. Hawker Coll. in British Museum. Wing: 201 mm.

This is the east African form, and ranges down the Nile Valley to Uganda and B.E.A.

Named in honour of Mr. Willoughby P. Lowe.

There are therefore two races of this Sand-Grouse as follows:—

PTEROCLES QUADRICINCTUS QUADRICINCTUS Temm. *Pig. et Gall.* iii. 1815, pp. 252, 713: coast of Coromandel, *errore* = Senegal, W. Africa.

As there can be little doubt that this Sand-Grouse does not range across into India, the locality of Coromandel is incorrect. In the *Pig. et Gall.*, p. 254, it will be found that Temminck based the locality of Coromandel on the authority of Sonnerat. Later, in the *Pl. Col.* v., under *P. lichtensteinii* he remarks:—"La preuve certaine que le Ganga quadrubande a été trouvé non seulement sur la côte de Coromandel, mais encore sur une grande étendue de côtes d'Afrique; j'en ai reçu plusieurs individus du Sénégal."

So that, as Temminck himself has given a locality in Africa for this species, the type locality in future should be designated as "Senegal, West Africa."

Paler, less broadly marked, more "bloom" above.

Wing: ♂ (5 measured) 173–185 mm.; ♀ (2 measured) 177–180 mm.

A young male from Senegal measures 179 mm. This is the only specimen available from the type locality.

Two adult females from Bahr-el-Ergig River, south of Ft. Lamy, Lake Chad district, appear to belong to the

western race, agreeing well in colour and markings, though they have the wing 179 and 182 mm. respectively.

Range. West Africa, Senegal, Gambia, Serikin, Kudu, nr. Ibi, Benue River, and probably to Lake Chad.

PTEROCLES QUADRICINCTUS LOWEI C. Grant, op. cit.

Darker, more broadly marked, less "bloom" above.

Wing: ♂ (7 measured) 183–201 mm.; ♀ (4 measured) 177–187 mm. Two young males measure 187 and 176 mm. respectively.

Range. Nile Valley, Abyssinia, Uganda, B.E.A., and west to el Obeid, Kordofan.

23. *Vinago waalia*. Bruce's Fruit-Pigeon.

Columba waalia Gmelin, Bruce's Reisen in das Innern von Africa, 1791, p. 31: Teherkin, nr. Lake Tsana, Abyssinia.

Gmelin does not give any defined locality, but in the 'Travels to discover the Source of the Nile,' vol. v. 1790, p. 186, Bruce tells us he discovered the Waalia on the road to Teherkin. Therefore this place, which is just north of Lake Tsana, becomes the type locality.

a, b. ♂ ad. Kittigom, Chua Dist., 2850 ft. Feb. 20, 21. Both are in good dress and not worn.

Total length in flesh: $12\frac{3}{4}$ & 13 inches. Wing: 170 & 178 mm.

[Irides blue and red; bill bluish white, dull red at base; feet yellow, claws grey. Very common.]

24. *Vinago calva salvadorii*. Salvadori's Bald-fronted Fruit-Pigeon.

Vinago calva salvadorii Dubois, P. Z. S. 1897, p. 784: Eastern and Central Tropical Africa.

a, b. ♂ ♀ ad. Amala River, 5400 & 5500 ft. Oct. 11 & 18.

c. ♀ ad. Mt. Maroto, Maroto Stream, 3700 ft. Jan. 20.

The female is duller and has less vinaceous on the wing than the male. Both are in good dress and the male is moulting. The female from Mt. Maroto is rather worn and darker than the other specimen.

Total length in flesh: ♂ $11\frac{1}{2}$ inches; ♀ 12 & $11\frac{1}{2}$ inches.

Wing: ♂ 167 mm.; ♀ 172 & 167 mm.

[Irides blue edged with red ; bill greenish horn or bluish white, red at base ; legs and toes red. In the female the bill is bluish white, basal half red.]

I have compared all the series in the Museum Collection, and cannot see any difference between *Columba calva* Temm. & Knip (Fig. i. 1811, p. 35, pl. vii. : coasts of Loango and Angola) and *V. nudirostris* Swainson ('Birds of Africa,' vol. ii. 1837, p. 205 : Senegal, *cf.* p. 203), which therefore becomes a synonym.

Vinago calva sharpei Reichenow (Orn. Monatsb. 1902, p. 45 : Oberguinea) is a pure synonym of *V. nudirostris* Swainson.

There is certainly some variation between the east and west coast birds, the eastern being perhaps rather brighter and rather larger than the west coast birds, and I have therefore maintained Dubois' "*salvadorii*." Birds from both coasts almost lack the grey nuchal band, the conspicuousness or otherwise of which is probably due to age.

The range of the two races I recognise appears to be as follows :—

VINAGO CALVA CALVA Temm.

Senegal, Gambia, Sierra Leone, Liberia, Gold Coast Colony, Nigeria, Cameroons south to Angola east to Welle River and Upper Congo, Islands of Principe and Fernando Po, *cf.* Bannerman, Ibis, 1914, p. 629.

VINAGO CALVA SALVADORII Dubois.

German East Africa, British East Africa, Uganda, across Ruwenzori and the Semliki Valley into eastern Belgian Congo.

25. *Columba guinea longipennis*. East African Speckled Pigeon.

Columba guinea longipennis Reichw. Vög. Afr. i. 1901, p. 402 : Ugogo, East Africa.

a. ♂ ad. 7 miles N.W. of Baringo, 3800 ft. Dec. 29.

b. ♂ ad. Mt. Maroto, Maroto Stream, 3700 ft. Jan. 24.

Both are in good clean plumage.

Total length in flesh : 14 & 14½ inches. Wing : 224 & 234 mm.

[Irides yellow, bordered exteriorly with red; bare skin round eyes red; bill dark brown or black, nostrils grey; legs and toes pinkish flesh. Tolerably common.]

In naming these birds I have examined the whole series in the National collection, and have come to the conclusion that there are only two races of *Columba guinea*. I have upheld *C. g. longipennis* Reichenow, as the east African birds are somewhat larger than the west African, though the differences are very slight.

Erlanger, in the J. f. O. 1905, p. 112, compares the Guinea Pigeons from eastern, western, and southern Africa, and finds that the eastern and southern specimens differ from the north-eastern and western in the darker grey coloration, and furthermore the lower back, rump, and upper tail-coverts are the same colour as the belly; he appears to place *C. g. longipennis* and *C. g. uhchensis* as synonyms of *C. g. phæonota*.

I fail to understand what he means, and cannot see any difference in this respect between the western and eastern birds; the south African race *C. g. phæonota* G. R. Gray (List B. Brit. Mus. pt. iv. 1856, p. 32: South Africa) is undoubtedly quite distinct.

The two races are as follows:—

COLUMBA GUINEA GUINEA Linn.

Columba guinea Linn. Syst. Nat. 12th ed. i. 1766, p. 282: Guinea, ex Edwards.

On the average smaller. Wing-measurement: 231–212 mm.

Wing: Gambia, 231–218 mm. (not sexed). Gold Coast, ♂ 212 mm.; ♀ 220 mm. Niger, 222 mm. (not sexed).

COLUMBA GUINEA LONGIPENNIS Reichw.

On the average larger. Wing-measurement (both sexes): 245–214 mm.

Wing: Abyssinia, ♂ 245–228 mm., ♀ 237 mm.; Somali, 234 mm. (not sexed). Sudan, ♂ 219 mm. East Africa, ♂ 238–224 mm.; ♀ 230–214 mm. Kilimanjaro, ♂ 223 mm.;

227 mm., not sexed. Thus the males measure 245–219 mm. and the females 237–214 mm.

Of this race, *C. g. uhehensis* Reichw. (Orn. Monatsb. 1898, p. 82: *Iringa* in Uhehe), wing 220 mm., is a synonym.

26. *Columba arquatrix*. Speckled Wood-Pigeon.

Columba arquatrix Temm. & Knip, Fig. i. 1808–13, fam. seconde, p. 11, pl. v.: *Anteniquoi*=*Outeniqua*, Knysna, Cape Colony.

a. ♂ ad. Top of Mau Escarpment, 7200 ft. Sept. 29.

This bird agrees perfectly with specimens from the type locality and is in quite good dress.

Total length in flesh: 15¼ inches. Wing: 233 mm.

[Irides light brown; eyelids orange-yellow; bill yellow; legs and toes yellow. Very common amongst the thick forest-trees.]

27. *Turtur afra delicatula*. Blue-spotted Wood-Dove.

Chalcopelia delicatula Sharpe, Bull. B. O. C. xii. 1902, p. 84: *Goz-abu-Gumar*, White Nile.

a, b. ♂ ad. & imm. Gondokoro, 1800 ft. Mar. 5.

The adult agrees perfectly with the type.

The immature specimen still retains some of the buffy markings on the tips of the wing-feathers.

Total length in flesh: ad. 9 inches; imm. 8½ inches. Wing: 109 mm.

I agree with Mr. Selater that there are three distinct races of the Blue-spotted Dove (*cf.* 'Ibis,' 1912, p. 35).

[Irides brown; bill black; legs and toes dull claret. Not observed until we reached Gondokoro.]

28. *Turtur chalcospilos*. Emerald-spotted Wood-Dove.

Columba chalcospilos Wagl. Syst. Av., Col. 1827, sp. 83: Senegal.

a. ♂ imm. E. of Mt. Leganisho, 6800 ft. Nov. 1.

b. ♀ ad. Southern Guaso Nyiro, 2900 ft. Nov. 24.

c. ♂ juv. Amala River, 5300 ft. Oct. 23.

d. ♀ ad. Weiwei River, 3000 ft. Jan. 9.

The adults are in good dress. The immature bird is in moult and still retains a few feathers of the young dress. The young bird is also starting to assume the adult plumage.

Total length in flesh: ♂ $8\frac{1}{2}$ & 8 inches; ♀ 8 & $7\frac{3}{4}$ inches. Wing: ♂ 113 & 107 mm.; ♀ 104 & 102 mm.

In naming these birds I have had to examine the whole series in the National Collection; and I agree with Mr. Sclater (*cf.* Ibis, 1912, p. 35) that there are no real distinguishing characters between eastern and western and southern specimens; at least in colour.

Measurements of the wing give the following results:—West Africa, ♂ 105–102 mm.; ♀ 99–98 mm. East Africa, ♂ 115–104 mm.; ♀ 111–102 mm. South Africa, ♂ 110–105 mm.; ♀ 109–106 mm.

Certainly the west African birds are rather smaller than east and south African specimens, and should perhaps be kept separate, though, as only four specimens are available, it is possible that with a larger series the measurement of 105 mm. would be exceeded.

The single female specimen from Lake Ngami has the wing 118 mm., though it corresponds in colour with the rest of the series.

The named races of this Dove are as follows:—

		<i>Turtur chalcospilos chalcospilos</i> Wagl. Syst. Av., Col. sp. 83:
		Senegal.
„	„	<i>erlangeri</i> Rehw. J. f. O. 1902, p. 134:
		Angola.
„	„	<i>volkmanni</i> Rehw. J. f. O. 1902, p. 134:
		Damaraland.
„	„	<i>caffa</i> Rehw. J. f. O. 1902, p. 134:
		S.E. Africa.
„	„	<i>somalica</i> Erl. J. f. O. 1905, p. 134:
		South Somaliland.
„	„	<i>acanthina</i> Oberh. P. U.S. N. M. 1905,
		p. 845: Mt. Kilimanjaro.

I agree with Oberholser that *T. c. erlangeri* is a synonym of *T. c. chalcospilos*.

If a much larger series should show that west African birds are persistently smaller and Somaliland birds persistently larger, then three races might be recognised as follows:—

T. c. chalcospilos. West Africa.

T. c. volkmanni. Damaraland, east to Lake Ngami.

T. c. caffra. South, central, east, and north-east Africa.

As regards the value of the names *C. afra* and *C. chalcospilos*, there is no doubt both are founded on the *Turtur senegalensis* of Brisson (Orn. vol. i. 1760, p. 122) ; this name, however, cannot be used, as it is merely a latinisation of the French name and was not binomial. Brisson describes the colour of the spots as “viridi-aureæ splendentes in violaceum mutantes sicut in collo Anatino” ; in other words, the green spotted form. Linnæus describes the spots as “violaceo-azureis,” and Wagler as “aureo-viridi, in violaceum vergente.” Thus there can be no question that Linnæus’ name refers to the Blue-spotted Dove, and Wagler’s name to the Green-spotted Dove. This agrees with Erlanger’s views.

I have used the generic name of *Turtur* for this dove as there is no doubt that *C. afra* of Linnæus is the species on which this genus is founded (*cf.* Boddaert, Tabl. Planch. Enlum. 1783, p. 10, pl. 160). G. M. Mathews was apparently the first to note this in Nov. Zool. xvii. 1910, p. 503.

[Irides brown ; bill black or plumbeous, greyish brown in young ; legs and toes red or claret, dull pinkish red in young.]

29. *Streptopelia semitorquata semitorquata.* Red-eyed Turtle-Dove.

Columba semitorquata Rüpp. Neue Wirb. 1835, p. 66, pl. 23 : Tarantagebirge, N. Abyssinia.

a. ♀ ad. Amala River, 5300 ft. Oct. 22.

b. ♂ ad. Mt. Maroto, 3700 ft. Jan. 24.

Both are somewhat worn and moulting.

Total length in flesh: ♂ $13\frac{1}{2}$ inches; ♀ $13\frac{1}{8}$ inches.
Wing: ♂ 190 mm.; ♀ 185 mm.

[Irides red; bill black; legs and toes red.]

In examining the whole series of this Pigeon I can recognise only three races as follows:—

STREPTOPELIA SEMITORQUATA SEMITORQUATA Rüpp.

Range. N.E. and E. to S.E. Africa generally.

Of this *Turtur s. minor* Erl. (J. f. O. 1905, p. 125: Route Umfudu-Gobwen, S. Somaliland, and Kismayu); and *T. s. intermedius* Erl. (op. cit. p. 124: Roba-Schalo, South Shoa, and Harar), are synonyms.

Wing-measurements are as follows:—Abyssinia, ♂ 192 mm.; ♀ 172 mm. Somaliland, ♂ 197 mm.; ♀ 197 mm. East Africa, ♂ 190–177 mm.; ♀ 187–185 mm. Portuguese East Africa, ♂ 191 mm.; ♀ 185–179 mm. Rhodesia and Gazaland, ♂ 192 mm.; ♀ 187 mm. Upper Congo, 185 mm. Transvaal, ♂ 197–186 mm.; ♀ 189 mm. Zululand, ♂ 193 mm.; ♀ 185 mm.

STREPTOPELIA SEMITORQUATA ERYTHROPHRYS Sw. Birds W. Afr. ii. 1837, p. 207, pl. 22: West Africa, Senegal.

Range. West Africa and Fernando Po.

Wing-measurements: Mainland, ♂ 185–172 mm.; ♀ 176–172 mm. Fernando Po, ♂ 179–169 mm.; ♀ 168–169 mm.

STREPTOPELIA SEMITORQUATA SHELLEYI Salvad. Cat. Birds B. M. xxi. 1893, p. 419: Niger.

Range. Niger to Upper White Nile.

Wing measurements: ♂ 179–169 mm.; ♀ 175 mm.

30. *Streptopelia capicola damarensis*. Damaraland Turtle-Dove.

Turtur damarensis Finsch & Hartl. Vög. Ost-Afr. 1870, p. 550: Damaraland (*Andersson*), Gross-Namakaland (*Levaill.*).

a. ♂ ad. Amala River, 5500 ft. Oct. 12.

b. ♂ ad. Turkwel River, 1950 ft. Jan. 14.

The bird from Amala is rather worn and moulting, and the other is in bright plumage and very little worn.

Total length in flesh : $12\frac{1}{2}$ & 11 inches. Wing : 163 & 155 mm.

The Amala specimen agrees perfectly with specimens from Damaraland, and I cannot recognise *T. c. tropica* Reichw. (Orn. Monatsb. x. 1902, p. 139 : East Africa) as distinct.

The specimen from the Turkwel River is much lighter in colour and larger than the other from Amala and is, I think, a female though marked as a male.

Certainly specimens from Mt. Elgon and other parts of British East Africa seem to be darker than *S. c. damarensis*, but agree well with specimens of *S. capicola capicola* (*C. vinacea* var. *capicola* Sundev. Krit. om Levaill. 1857, p. 54 : Environs du Cap, cf. Levaill. Ois. d'Afr. vi. 1808, p. 79) from south-east Africa.

[Irides brown ; bill black ; legs and toes red. The Turkwel River bird has : Irides pale yellow, eyelids red ; bill black ; legs and toes red. Common in the dry country.]

31. *Streptopelia lugens*. Dusky Turtle-Dove.

Columba lugens Rüpp. Neue Wirb. 1835, p. 64, pl. 22 : Dongola, Abyssinia.

a, b. ♂ ♀. Hills south of Narossura, 7200 ft. Nov. 4.

Both are in good plumage, the male being rather worn on the tail.

Total length in flesh : $11\frac{1}{2}$ inches. Wing : ♂ 178 mm. ; ♀ 172 mm.

There is no difference in coloration between the male and female.

[Irides reddish brown, male lighter, around eyes red ; bill bluish brown ; legs and toes red. Appears to be quite common.]

32. *Stigmatopelia senegalensis senegalensis*. Senegal Turtle-Dove.

Columba senegalensis Linn. Syst. Nat. 12th ed. i. 1766, p. 283 : Senegal.

a. ♂ ad. Narossura River, 5000 ft. Nov. 16.

b. ♀ juv. Annamuget, Bakoro, 3700 ft. Feb. 2.

The male is in good dress and but slightly worn. The young bird is moulting from the young to the adult dress.

Total length in flesh: ad. $10\frac{1}{8}$ inches; juv. $10\frac{1}{4}$ inches. Wing: ad. 133 mm.; juv. 130 mm.

[*Ad.* Irides brown, eyelids red; bill black; legs and toes red. *Juv.* Legs and toes claret.]

In naming this bird I have been carefully through the whole series in the British Museum, and I fail to see more than two races on the mainland of Africa and one from the Island of Socotra, three in all as follows:—

STIGMATOPELIA SENEGALENSIS SENEGALENSIS Linn.

Range. West, East, and South Africa.

Wing-measurements as follows:—Abyssinia, ♂ 141–135 mm. Somaliland, ♂ 137 mm. East Africa, ♂ 140–134 mm.; ♀ 134–131 mm. Congo, ♂ 133 mm. Tanganyika, ♂ 134 mm. Nyasaland, ♂ 137–131 mm. West Africa, ♂ 144–131 mm.; ♀ 135–132 mm. (two specimens unsexed from Senegal 138 and 136 mm. respectively). South Africa, ♂ 138–135 mm.; ♀ 134–132 mm. (one ♀ from Woodbush, N.E. Transvaal, 139 mm.).

Arabian birds also appear to belong to this race. ♂, wing 134–131 mm.

I cannot recognise *T. s. æquatorialis* Erl. (Orn. Monatsb. xii. 1904, p. 98: Menaballa, Route Harar, Adis-Ababa, and Harar); it therefore becomes a synonym.

STIGMATOPELIA SENEGALENSIS ÆGYPTIACA Lath.

Columba ægyptiaca Lath. Ind. Orn. ii. 1790. p. 607, no. 49: Egypt.

I have gone into the name given by Forskål to this race (*Columba testaceo-incarnata*, Descript. Animal. Av. 1775, p. 5: Egypt), and find that on p. vi. he gives the name of *incarnata* and on p. 5 the name of *testaceo-incarnata*; I am of opinion, therefore, that although Sherborn has included the name in his Index Animalium, 1902, Forskål's name is not binomially correct and cannot stand.

Size large, and dark in colour.

Range. Egypt and Palestine.

Wing-measurements: Egypt, ♂ 152-148 mm.; ♀ 145 mm.
Palestine, ♀ 139 mm., one unsexed 142 mm.

STIGMATOPELIA SENEGALENSIS SOKOTRÆ C. Grant.

Streptopelia senegalensis sokotræ Claude Grant, Bull.
B. O. C. vol. xxxv. 1914, p. 19: Hadibu Plain, N. Sokotra.

Paler, and size somewhat smaller than *S. s. senegalensis*.

Type ♂ ad. Hadibu Plain, N. Sokotra. 12th Dec., 1898
(W. R. Ogilvie-Grant & H. O. Forbes). Wing: 129 mm.

Range. Island of Socotra.

Wing-measurements: ♂ 133-123 mm.; ♀ 127-123 mm.

Mr. Ogilvie-Grant and Dr. Forbes in their paper on the
Birds of Sokotra, "Nat. Hist. of Sokotra & Abd el Kuri,"
Aves, 1903, p. 56, in speaking of this dove, state that it
"has the forehead, chin, and throat, and sometimes the
lower breast distinctly paler than Arabian examples of this
species."

This, coupled with the small size, compels me to separate
this form from either of the mainland races.

The one unsexed specimen from Muscat in the Museum
collection has the wing 128 mm., and though small, agrees
in coloration with Arabian specimens.

33. *Æna capensis*. Long-tailed African Dove.

Columba capensis Linn. Syst. Nat. 12th ed. i. 1766, p. 286:
Cape of Good Hope (*ex* Brisson).

a. ♂ ad. Loita. Oct. 5.

b. ♀ ad. Kamchuru, Lohor dist., 3250 ft. Feb. 12.

c. ♂ ad. 20 miles E. of Nimule, 2200 ft. Feb. 25.

The specimen from Loita is in good clean dress, and the
other two are both a little faded.

Total length in flesh: ♂ 10 & $7\frac{3}{4}$ inches (tail of the last
imperfect); ♀ $9\frac{3}{4}$ inches. Wing: ♂ 106 & 101 mm.;
♀ 101 mm.

I am afraid I cannot recognise *Æ. c. anonyma* Ober-
holser (P. U.S. Nat. Mus. xxviii. 1905, p. 843: plains east
of Mt. Kilimanjaro); all specimens I have examined

seem to vary slightly, and I cannot see any tangible difference between specimens from the Cape and those from east Africa.

[♂. Irides dark brown; bill red, tip yellow; legs and toes red. ♀. Similar, except bill reddish black.]

34. *Tympanistria tympanistria*. White-breasted Wood-Dove.

Columba tympanistria Temm. & Knip, Fig. 1808-11, i. fam. sec. p. 80, pl. 36: "La partie méridionale de l'Afrique, vers le pays des Cafres."

a. ♀ ad. Amala River, 5300 ft. Oct. 24.

In good dress, rather darker on the head than specimens from south Africa.

Total length in flesh: $8\frac{1}{2}$ inches. Wing: 112 mm.

[Irides dark brown; bill pinkish brown; legs and toes dull claret-colour.]

35. *Limnocorax niger*. Black Rail.

Rallus niger, Gmel. Syst. Nat. i. pt. 2, 1789, p. 717: Cape of Good Hope.

a. ♀ ad. Amala River, 5400 ft. Oct. 19.

b. ? juv. Narossura River, 5000 ft. Nov. 13.

c. ♂ imm. N.E. slopes Nakwai Hills, 3600 ft. Feb. 8.

Total length in flesh: ad. 8 inches; imm. $8\frac{3}{4}$ inches; juv. $7\frac{1}{2}$ inches. Wing: juv. 99 mm.; imm. 101 mm.

The adult is in full moult and the wings are in full "flapper" state, *i. e.*, moulting altogether.

The young bird is apparently in first dress. The immature is not moulting and is in clean dress, being similar to the adult, but having ashy edges to the feathers, both above and below.

These birds agree with specimens from the type locality.

[Ad. Irides red, eyelids red; bill green; legs and toes coral-red. Imm. Irides red, eyelids red; bill green; legs and toes dull red. Juv. Irides red; bill dirty green; legs and toes reddish brown. Common, but seldom seen on account of its retiring habits.]

36. *Gallinula chloropus meridionalis*. African Moorhen.

Stagnicola meridionalis Brehm, Vogelf. 1855, p. 331 : South Africa.

a. ♀ imm. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : $12\frac{1}{2}$ inches. Wing : 145 mm.

This example is moulting on the body alone from first to second plumage (*cf.* Moults of *G. c. chloropus*, Ibis, 1914, p. 300).

[Irides reddish brown ; bill greenish and red ; legs and toes green. Common.]

To prove the validity or otherwise of this subspecies I have had to examine the whole of the *G. chloropus* group, and have come to the following conclusions :—

GALLINULA CHLOROPUS CHLOROPUS Linn.

Fulica chloropus Linn. Syst. Nat. 12th ed. i. 1766, p. 258 : South Europe.

Gallinula minor Hartl. (J. f. O. 1860, p. 341 : Senegal) is a synonym of *G. angulata* ; and *Stagnicola minor* Brehm (Vogelf. 1855, p. 331 : Germany) is a synonym of *G. c. chloropus*.

Range. Europe generally, Arabia, Egypt, and Azores.

Wing measurements : ♂ 188–173 mm. ; ♀ 177–167 mm.

Indian, Ceylonese, Chinese and Japanese birds are in every way similar to those from Europe except that they are slightly smaller ; they should perhaps bear the name of :—

G. c. PARVIFRONS Blyth.

Gallinula parvifrons Blyth, J. A. S. Bengal, xii. 1843, p. 180 : nr. Calcutta.

G. burnesi Blyth (J. A. S. Bengal, xxiii. 1854, p. 737) was founded on a drawing by Burnes of a bird from Kabul, which is stated to have no white under tail-coverts and no white flank-stripes. I can find no bird from Asia that accords with this description.

The “less developed shield” is no character, and it must be borne in mind that Blyth compared his Calcutta bird with one from Mauritius.

Wing-measurements: ♂ 175-155 mm.; ♀ 162-159 mm.;
♂ from type loc. 162 mm.

Range. India, Ceylon, China, and Japan, and perhaps Tibet; two specimens from the latter country have the wing 157 mm. & 180 mm., the last being a male.

GALLINULA CHLOROPUS ORIENTALIS Horsf.

Gallinula orientalis Horsf. Tr. Linn. Soc. xiii. 1820, p. 195 :
Java.

Small, and with distinct blue on the wing-coverts.

Wing-measurements: ♂ 166-152 mm.; sexed and unsexed
166-145 mm., type 145 mm. One from Sumatra has the
wing only 129 mm.

Range. Java, Sumatra, and the Celebes.

Five specimens from Luzon and Formosa seem to be
rather intermediate between *G. c. orientalis* and *G. c. parvi-*
frons. Their wings measure 175-166 mm., two sexed males
170 mm. & 166 mm.

GALLINULA CHLOROPUS MERIDIONALIS Brehm.

Of this, *Stagnicola brachyptera* Brehm (Vogelf. 1855,
p. 331 : Middle Africa) is a synonym.

Small, with distinct blue on wing-coverts.

Apparently only distinguishable from *G. c. orientalis* by
its shorter toes.

Wing-measurements: ♂ 175-147 mm.; ♀ 165-153 mm.

Range. Africa generally, except Egypt; it also occurs
on the islands of St. Thomas and Annobon as recorded by
Mr. D. A. Bannerman in his paper in this number of the
Ibis*.

GALLINULA CHLOROPUS PYRRHORHOA Newt.

Gallinula pyrrhorhoa A. Newton, P. Z. S. 1861, p. 18 :
Mauritius.

Under tail-coverts deep buff colour.

Wing-measurement: 175-162 mm.

Range. Mauritius and Madagascar.

G. frontata, from Bouru, Ceram, and Celebes, coincides
in its distribution with *G. c. orientalis* in the latter locality

* Cf. p. 116.

and is quite distinct, being large, dark, with no flank stripes or only the merest indications, and having the legs dark red.

37. *Fulica cristata*. Crested Coot.

Fulica cristata Gmel. Syst. Nat. i. pt. 2, 1789, p. 704: Madagascar.

a, b. ♀ ad. & imm. Lake Naivasha, 6700 ft. Dec. 3 & 6.

Total length in flesh: ad. 17 inches; imm. $17\frac{3}{4}$ inches. Wing: ad. 129 mm.; imm. 193 mm. Weight of immature: $1\frac{1}{2}$ lbs.

Both are in good dress. The immature, besides having browner flight-feathers, has the shield and knobs on the head considerably smaller.

In the National Collection there is only one specimen from the type locality, an immature bird, which agrees perfectly with birds of the same age from the mainland of Africa.

[*Ad.* Irides red; bill bluish white, crown white, "horn" red; legs and toes plumbeous. *Imm.* Irides brown; bill bluish horn; legs and toes plumbeous. Abundant.]

38. *Podiceps capensis* *ruficollis capensis*. African Little Grebe.

Podiceps capensis Salvad. Ann. Mus. Civ. Genov. (2) i. 1884, p. 252: South Africa.

a, b. ♂ ♀ ad. Lake Naivasha, 6700 ft. Dec. 4.

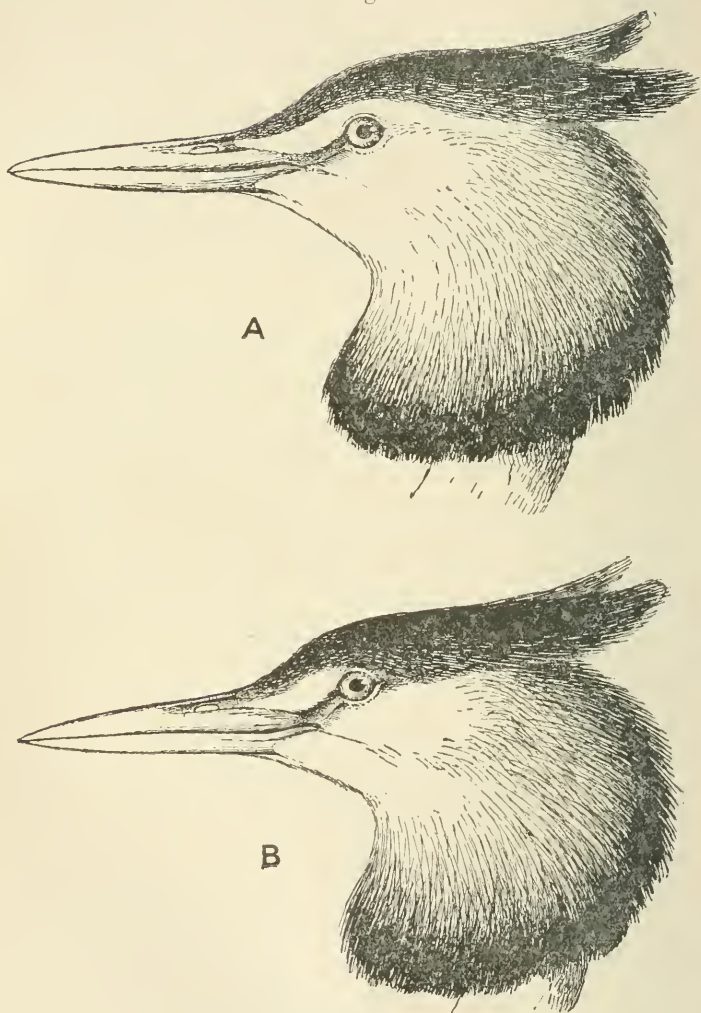
Total length in flesh: ♂ $10\frac{1}{2}$ inches; ♀ $9\frac{1}{2}$ inches. Wing: ♂ 103 mm.; ♀ 91 mm.

The male is in full summer dress and the female is moulting on the chest and may not be fully adult, as the chestnut of the neck and the black of the chin and throat are intermixed with white.

These specimens agree quite well with others from the type locality.

[Irides brown; bill black, greenish horn in ♀, bare skin

Text-fig. 2.

A. Head of *Podiceps cristatus cristatus*.B. Head of *Podiceps cristatus infuscatus*.

yellow, greenish yellow in ♀ ; legs and toes black and olive-green, black on outside in ♀ . Stomach contained aquatic insects. Very common.]

39. *Podiceps cristatus infuscatus*. African Great Crested Grebe. (Text-figure 2 B.)

Podiceps infuscatus Salvad. Ann. Mus. Civ. Genov. (2) i. 1884, p. 251 : Lago Kilolé (Adda Galla).

a. ♂ ad. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : $23\frac{1}{4}$ inches. Wing : 187 mm.

In full summer dress.

This is quite a distinct subspecies, and besides having the upper parts and the flanks darker than in *P. cristatus cristatus* Linn. (Syst. Nat. 12th ed. i. 1766, p. 222 : Europe), as pointed out by Salvadori and recognised by Sharpe (*cf.* Ibis, 1892, p. 545), has no trace of a superciliary streak, as was apparently first noticed by Gurney (*cf.* Ibis, 1885, p. 350). This character is as noticeable in winter as in summer dress.

The figure of the head in Stark & Sclater's 'Fauna of South Africa,' iv. 1906, p. 510, does not truly represent either one or the other ; according to the artist, Mr. Grönvold, it was drawn from a South African specimen, and a faint line, visible on the drawing, has been pointed out to me as meant to separate the white lores from the dark feathering over the eye.

This same figure has been used in C. J. Patten's 'Aquatic Birds of Gt. Britain and Ireland,' 1906, p. 515, and emphasises once again the folly of publishing in any work figures or plates of a species that have not been drawn from a specimen taken in the country or that part of it to which the work alludes.

Range. The African Great Crested Grebe is probably found over the greater part of Africa, except possibly Algeria and Tunisia, where it is replaced by the European bird.

If further evidence is required to show that the African bird is distinct from the European, it is that during the winter months in the Northern Hemisphere, when the

European birds are in full winter dress, the African birds are in full summer dress.

[Irides reddish brown; bill brownish horn, tip of lower mandible lighter; legs and toes mottled yellow and black. Many seen, shy and difficult to shoot.]

40. *Hydrochelidon leucoptera leucoptera*. White-winged Tern.

Sterna leucoptera Temm. Man. d'Ornith. 1815, p. 483 : Coasts of the Mediterranean.

a. ♂ imm. Lake Naivasha. 6700 ft. Dec. 4.

Total length in flesh : $9\frac{1}{2}$ inches. Wing : 205 mm. Bill : 25 mm.

This bird is practically in full winter dress, but still retains a few of the immature feathers in the wings and tail.

In naming this bird I have gone through the whole series in the National Museum, both of this species and *H. nigra* Linn. (Syst. Nat. 10th ed. 1758, p. 137 : Europe), and have noted the following differences between the species in winter and immature dress :—

H. l. leucoptera.—*Adult winter*. Appearance of crown and nape lighter (actually the black is much blacker), feathers more broadly edged with white, giving a very mottled appearance. Above lighter grey.

Young. On the average more white on forehead, and much whiter rump.

H. nigra.—*Adult winter*. Appearance of crown and nape darker (actually the black is more sooty). Above darker grey.

Young. On the average less white, often more fulvous, on forehead, and much greyer rump.

At all times and at all ages the bill of *H. leucoptera* is shorter than that of *H. nigra*, i. e. *H. leucoptera*, 22–25 mm., and *H. nigra*, 26–28 mm., taking adults only.

Specimens in the Museum show that *H. leucoptera* is found commonly in Africa, both east and west, and south to Cape Colony : *H. nigra* is apparently a rare visitor, as there are

only three specimens in the Museum collection, two from Fantee and one from Victoria, Cameroon.

As regards the names, *Sterna fassipes* Linn. (Syst. Nat. 12th ed. i. 1766, p. 228 : South Europe), and *Sterna cinerea* Gm. (Syst. Nat. i. pt. 2, 1789, p. 607 : Italy), are both very indeterminate, but I think that the former applies more to *H. nigra* and the latter more to *H. leucoptera* in changing plumage, though it is impossible to decide the question with any certainty.

[Irides brown; bill black; legs and toes red. Several seen.]

41. *Gelochelidon nilotica nilotica*. African Gull-billed Tern.

Sterna nilotica Gmelin, Syst. Nat. i. pt. 2, 1789, p. 606 : Egypt.

a b. ♂ ♀ ad. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : ♂ 15 inches ; ♀ 14 inches.
Wing : ♂ 327 mm.

Both examples are in moult and rapidly assuming the full winter dress. In the female the first primaries are only partly grown and the wing cannot therefore be measured.

[Irides brown ; bill black ; legs and toes dark brown. Several seen.]

42. *Larus cirrhocephalus*. Grey-Headed Gull.

Larus cirrhocephalus Vieill. N. Dict. d'Hist. Nat. xxi. 1818, p. 502 : Brazil.

a, b, c. ♀ imm. Lake Naivasha, 6700 ft. Dec. 4.

One with a rather shorter bill, 30 mm. as against 35 and 37 mm. of the other two, has the [bill pinkish brown, tip black; legs and toes reddish flesh]. Except for the bill the bird is similar to the other two.

Total length in flesh ; $15\frac{1}{4}$, $15\frac{3}{4}$, 16 inches. Wing : 287, 291, 305 mm.

All are a little worn and one is in second dress, *i. e.* the dress that is assumed by the first autumn moult and which is retained till the following autumn moult.

I am unable to see any character that separates African from American specimens.

It is worthy of note that, so far as I can learn, the exact breeding-place of this bird is not known, and the eggs have not yet been described. The eggs in the British Museum, collected by Holland in the Argentine and recorded in the Cat. of Birds' Eggs (E. Oates), vol. v. 1901, p. 207, pl. xvi. fig. 5, are without doubt those of *L. maculipennis* Licht. (Verz. Doubl. 1823, p. 83: Monte Video); and I should not be surprised to learn that the breeding-place of this species was not in South America, especially as my own observations in the Argentine showed that *L. cirrhocephalus* left during the breeding-season (*cf.* Ibis, 1911, p. 475).

On going through the dated adults in the National Collection the following shows the months during which they occur on the two continents:—*Africa*: January, February, March, May, June, July, August, November and December. *South America*: March, April, May, July, September, November and December.

This certainly seems to point to the bird being found throughout the year on both continents and is in contradiction to my own observation quoted above.

Sir Frederick Jackson says that this gull breeds commonly on Lake Naivasha, but I have not been able to examine eggs in support of this.

[Irides brown; bill light brown, tip darker; legs and toes yellowish flesh. Common.]

43. *Sarciophorus tectus*. Senegal Plover.

Charadrius tectus Bodd. Tab. Pl. Enl. d'Hist. Nat. 1783, p. 51: Senegal, *ex* Brisson.

a. ♂ ad. 16 miles N.W. of Baringo, 3550 ft. Dec. 29.
Total length in flesh: 11¼ inches. Wing: 195 mm.

This bird is in quite good dress, very little worn. The white underparts are stained with sandy, due to the nature of the ground on which the bird was shot.

As regards *S. latifrons* Reichenow (Ornith. Centralb. 1881, p. 79: Berdera, R. Juba), I cannot, with the specimens before me, see any difference either in the white band of the forehead or in general colour between western and eastern birds.

The following measurements of the wings also show very little difference in this respect :—

Western : 193–180 mm. Two sexed males, 190–189 mm.

Eastern : 202–173 mm. Sexed males, 195–189 ; females, 192–173 mm.

[Irides yellow ; bill red, tip black, wattles red ; legs and toes red.]

44. *Afribyx senegallus*. Wattled Spur-winged Plover.

Parra senegallus Linn. Syst. Nat. 12th ed. i. 1766, p. 259 : Senegal.

a. ♀ ad. 50 miles S. of Gondokoro. Mar. 1.

Total length in flesh : $13\frac{3}{4}$ inches. Wing : 228 mm.

In good plumage, just a little worn.

This bird may not be fully adult as it has not yet assumed the black on the abdomen, or the black tip to both mandibles, which characters do not appear to be sexual or seasonal.

[Irides greyish yellow ; upper wattle red, lower yellow ; eyelids yellow ; bill yellow, tip of upper mandible black ; legs and toes yellow. Tolerably common and nesting.]

45. *Hoplopterus spinosus*. Egyptian Spur-winged Plover.

Charadrius spinosus Linn. Syst. Nat. 10th ed. 1758, p. 151 : Egypt.

a. ♂ ad. Lake Hannington, 3700 ft. Dec. 25.

Total length in flesh : $11\frac{1}{4}$ inches. Wing : 198 mm.

In very worn and bedraggled plumage.

[Bill black ; legs and toes black.]

46. *Hoplopterus armatus*. Black-and-white Spur-winged Plover.

Charadrius armatus Burchell, Travels, i. 1822, p. 501 : Klaarwater or Griquatown, Cape Colony.

a. ♀ ad. Loita, 6300 ft. Oct. 4.

Total length in flesh : $11\frac{1}{2}$ inches. Wing : 215 mm.

In clean fresh dress, still moulting.

[Irides red ; bill black ; legs and toes black.]

47. *Stephanibyx coronatus*. Crowned Lapwing.

Charadrius coronatus Bodd. Tab. Pl. Enl. d'Hist. Nat. 1783, p. 49: Cape of Good Hope.

a. ♂ ad. Mt. Suswa. Sept. 27.

Total length in flesh: $11\frac{3}{4}$ inches. Wing: 202 mm.

In rather worn dress and moulting.

[Irides yellow; bill red, tipped with black; legs and toes red. Very common and several seen close to camp.]

48. *Stephanibyx melanopterus*. Black-winged Lapwing.

Charadrius melanopterus Cretzschm. Atlas, 1826, p. 46, pl. 31, published 1829 (cf. Oken, Isis. 1829, xxii. p. 1291): Djedda, Red Sea.

a. ♂ ad. Narossura Plateau, 8100 ft. Nov. 1.

Total length in flesh: $10\frac{3}{4}$ inches. Wing: 211 mm.

In somewhat worn plumage.

The differences between this species and *S. inornatus* Sw. (Birds W. Afr. ii. 1837, p. 239: Senegal) are well marked.

The name *Charadrius lugubris* Lesson (Dict. Sc. Nat. xlii. 1826, p. 36) apparently has priority over *Vanellus inornatus* Swainson and should be used. No type locality was given, but I designate Senegal.

The two main characters lie in the warm bronzy colour of the back of *S. melanopterus* compared with the cold oily green back of *S. lugubris* (= *S. inornatus*), and in the wing of the former measuring 225–201 mm. as against 183–169 mm. of the latter. There is also apparently some difference in the soft parts (cf. Ibis, 1912, p. 59).

I have been unable to examine specimens of *S. melanopterus* from the type-locality, and the figure in the 'Atlas' shows a very brown-backed bird, which may, however, be merely due to the artist.

As regards the *S. m. minor* Zedlitz (J. f. O. 1908, p. 180: South Africa), there appears to be very little difference between south, east, and north-east African specimens; the colour is the same, the frontal forehead band is a very variable quantity, and the wings measure respectively; from

south Africa 215-201 mm., east Africa 213-205 mm., and north-east Africa 225-214 mm.

In these days of careful geographic work it is a pity a more definite locality has not been given for the type.

[Irides yellow, eyelids red ; bill black ; legs and toes dull red.]

49. *Eupoda asiatica*. Asiatic Dotterel.

Charadrius asiaticus Pallas, Reise Russ. R. ii. 1773, p. 715 : S. Tartary.

a, b. ♂ ♀ imm. Loita, 6300 ft. Nov. 28.

c. ♀ imm. Turkwel River, 2000 ft. Jan. 11.

d, e. ♂ ad. Bakoro Plain, 3500 ft. Feb. 3.

Total length in flesh : ad. $9\frac{1}{2}$ inches ; imm. 9 & $8\frac{1}{2}$ inches.

Wing : ad. 156 & 150 mm. ; imm. ♂ 146 mm. ; ♀ 150 & 147 mm.

The immature females are in clean plumage and not moulting : the male is moulting.

One of the two adults is moulting on the body.

[*Ad.* Irides brown ; bill black ; legs greyish flesh, feet darker. *Imm.* Irides brown ; bill black ; legs and toes greenish grey. In small flocks.]

50. *Afroxyechus tricollaris*. Tri-collared Sand-Plover.

Charadrius tricollaris Vieill. N. Dict. d'Hist. Nat. xxvii. 1818, p. 147 : Africa. *Africa meridionalis*, Wagl. Syst. Av. 1827, p. 67. I designate nr. Cape Town.

a, b. ♀ ad. Loita, 6300 ft. Oct. 4.

c. ♀ imm. Amala River, 5500 ft. Oct. 11.

Total length in flesh : $6\frac{3}{4}$ & 7 inches. Wing : 116, 108, & 105 mm.

All are in moult, the immature still retaining some of the young dress on the wings and tail.

[Irides light brown, eyelids red ; bill black, basal half yellow, orange, or flesh-colour ; legs and toes flesh, yellowish flesh, or dusky flesh-colour. Tolerably common on the salt-marshes.]

51. *Himantopus himantopus*. European Stilt.

Charadrius himantopus Linn. Syst. Nat. 10th ed. 1758, p. 151: Egypt *ex* Hasselquist.

a, b. ♀ imm. Loita, 6300 ft. Oct. 4.

Total length in flesh: $14\frac{1}{4}$ inches. Wing: 214 & 213 mm.

Both are in young plumage and are starting to assume the adult feathering on the body.

[Irides reddish brown; bill black, base of lower mandible pink or flesh-colour; legs and toes bluish pink or bluish flesh. Plentiful.]

52. *Tringa stagnatilis*. Marsh Sandpiper.

Totanus stagnatilis Bechst. Taschenb. Deutschl. ii. 1803, p. 292: Germany.

a. ♂ ad. Lake Naivasha, 6700 ft. Dec. 12.

Total length in flesh: $9\frac{1}{2}$ inches. Wing: 132 mm.

Moulting into winter dress, the old feathers being very worn and rusty.

[Irides brown; bill black, greenish at base; legs and toes dirty green. Common.]

53. *Tringa ochropus*. Green Sandpiper.

Tringa ochropus Linn. Syst. Nat. 10th ed. 1758, p. 149: Sweden.

a. ♀ ad. Mau. Dec. 2.

Total length in flesh: 10 inches. Wing: 152 mm.

Still moulting into winter plumage on the body.

[Irides brown; bill olive-green, legs and toes yellowish grey. Several seen.]

54. *Tringoides hypoleucos*. Common Sandpiper.

Tringa hypoleucos Linn. Syst. Nat. 10th ed. 1758, p. 149: Sweden.

a. ♀ imm. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh: 8 inches. Wing: 109 mm.

Moulting in the wings only.

[Irides brown; bill dark green; legs and toes plumbeous flesh.]

55. *Pisobia minuta*. Little Stint.

Tringa minuta Leisler, Nachtr. Bechst. Naturgesch. Deutsch. 1812, p. 74: Germany.

a. ♀ ad. Lake Naivasha, 6700 ft. Dec. 6.

Total length in flesh : 6 inches. Wing : 94 mm.

In full fresh winter dress.

[Irides brown ; bill black ; legs and toes dark brown. Several seen.]

56. *Gallinago nigripennis*. Black-quilled Snipe.

Gallinago nigripennis Bp. Icon. Faun. Ital., Ucc. 1832, text to pl. 43. p. 4 : Cape of Good Hope.

a. ♂ imm. Mau, 9100 ft. Dec. 2.

Total length in flesh : $11\frac{1}{2}$ inches. Wing : 130 mm.

In clean dress and very little worn. The light tips to the primaries show that this specimen is not fully adult.

[Irides brown ; bill brown, dirty green at base ; legs and toes greyish yellow. Appears to be common.]

57. *Gallinago gallinago*. Common Snipe.

Scolopax gallinago Linn. Syst. Nat. 10th ed. 1758, p. 147 : Sweden.

a. ♂ ad. Loita, 6400 ft. Oct. 4.

Total length in flesh : $10\frac{1}{2}$ inches. Wing : 135 mm.

In good dress and but little worn.

[Irides brown ; bill light brown, black at tip ; legs and toes dull green. Several seen.]

58. *Actophilus africanus*. African Jacana.

Parra africana Gmelin, Syst. Nat. i. pt. 2, 1789, p. 709 : Africa, I designate Abyssinia.

a. ♀ ad. River Naam, 3150 ft. Feb. 16.

Total length in flesh : 13 inches. Wing : 167 mm.

In good plumage, very little worn.

[Irides brown ; bill and crown bluish grey ; legs and toes bluish grey. Stomach contained aquatic insects. Quite common and tame.]

59. *Cursorius temminckii*. Temminck's Courser.

Cursorius temminckii Sw. Zool. Illustr. ii. 1822, pl. 106 : Senegal (*cf.* Sw. Birds W. Afr. ii. 1837, p. 230).

a. ♂ ad. Lemek Valley. Oct. 6.

b, c. ♂ ♀ ad. Kamchurn, Lohor Dist., 3200 ft. Feb. 13.

Total length in flesh : 8 inches. Wing : ♂ 127 & 126 mm. ; ♀ 125 mm.

All three are in good clean dress ; they are rather dark-coloured specimens and have a dark tinge across the forehead ; they are, however, matched by specimens from both west and south Africa, and I can see no constant character that differentiates the eastern birds.

[Irides brown ; bill black, base of lower mandible whitish ; legs and toes cream or white. Contents of stomach, insects. Tolerably common.]

60. *Rhinoptilus africanus gracilis*. Two-banded Courser.

Cursorius gracilis Fisch. & Reichw. J. f. O. 1884, p. 178 : Masailand.

a. ♂ ad. Kijabe, 6200 ft. Sept. 24.

Total length in flesh : 8 inches. Wing : 132 mm.

In somewhat worn dress and moulting on body.

[Irides brown ; bill black ; legs and toes white. Seen only two or three times.]

In naming this bird I have examined carefully all the races of this Courser and have come to the following conclusions :—

RHINOPTILUS AFRICANUS AFRICANUS Temm.

Cursorius africanus Temm. Cat. Syst. Cab. Orn. 1807, p. 175, and p. 263 : Namaqualand.

A large, rather pale form. Wing : 161–147 mm.

Range. Little and Great Namaqualand and Damaraland across to Bechuanaland (part).

Of this *Cursorius bicinctus* Temm. (Man. d'Orn. ii. 1820, p. 515 : Interior of Africa, *ex* Le Vaillant, as is Temminck's

africanus); *Tachydromus collaris* Vieill. (N. Diet. d'Hist. Nat. viii. 1817, p. 293: Africa. Africa meridionali locis sterilibus, cf. Wagl. Syst. Av. 1827, p. 81; a substitute name for *africanus* and founded on specimens in Temminck's collection); and *Cursorius grallator* Leadbeater (Trans. Linn. Soc. N. S. xvi. 1830, read Dec. 20, 1825, p. 92: no type locality), are synonyms.

RHINOPTILUS AFRICANUS SHARPEI.

Rhinoptilus africanus sharpei Erlanger, J. f. O. 1905, p. 59: South-east Africa.

For modern work I consider the non-recording of a type and the very vague type-locality given by Erlanger to be inexcusable. However, to avoid creating further names I use his name for this large dark race, and designate Deelfontein, central Cape Colony, as the particular type locality.

A large, dark form. Wing: 164–148 mm.

Range. Griqualand West, Bechuanaland (part), central Cape Colony to Orange River Colony and Transvaal.

RHINOPTILUS AFRICANUS BISIGNATUS Hartl.

Cursorius bisignatus Hartl. P. Z. S. 1865, p. 87: Benguella, Angola.

A small, pale form. Wing: 135 mm.

Range. Angola.

Only one specimen, the type, is in the National collection and is paler than east African birds. This character with a larger series may prove to be constant, so that I prefer, for the present, to keep the Angola race separate from the east African race.

RHINOPTILUS AFRICANUS GRACILIS Fisch. & Reichw.

Cursorius gracilis Fisch. & Reichw. J. f. O. 1884, p. 178: Masailand.

A small, somewhat dark race. Wing: 132–129 mm.

Range. German East Africa, British East Africa, and Uganda.

RHINOPTILUS AFRICANUS HARTINGI Sharpe.

Rhinoptilus hartingi Sharpe, Bull. B. O. C. iii. 1893, p. xiv : Somaliland.

A small rufous race. Wing : 145–130 mm.

Range. Somaliland.

61. *Rhinoptilus cinctus cinctus*. Heuglin's Courser.

Cursorius cinctus Heugl. Sitzb. K. Akad. Wiss. Wien, xix. 1856, p. 255 : Bahr el Abiad, *i. e.* White Nile.

In 'The Ibis' for 1863, p. 31, pl. i., Heuglin describes this bird under the genus *Hemerodromus* and gives the type-locality as Gondokoro, White Nile.

a. ♂ ad. N'gabotok, Turkwel River, 2200 ft. Jan. 10.

Total length in flesh : $9\frac{3}{4}$ inches. Wing : 157 mm.

In good clean dress and still moulting slightly.

[Irides brown ; bill black, base yellow ; legs and toes bluish flesh. Several seen in dry desert country, standing beneath "wait-a-bit" thorn bushes for shade.]

62. *Ædicnemus senegalensis*. Senegal Thick-knee.

Ædicnemus senegalensis Swains. Birds W. Afr. ii. 1837, p. 228 : Senegal.

a. ♂ imm. Lake Hannington, 3700 ft. Dec. 25.

b. ♀ ad. Kittigom, Chua Dist., 2850 ft. Feb. 21.

Total length in flesh : 16 inches. Wing : ad. 210 mm. ; imm. 207 mm.

The adult is quite worn, but is not yet moulting. The immature is generally much more sandy in colour than the adult.

[Irides yellow, eyelids yellow ; bill black, base yellow, base yellowish green in immature ; legs and toes yellowish grey, dirty yellow in immature. Several seen.]

63. *Ædicnemus capensis capensis*. South African Thick-knee.

Ædicnemus capensis Licht. Verz. Doubl. 1823, p. 69 : Cape of Good Hope.

a. ♀ ad. Loita, 6300 ft. Nov. 26.

Total length in flesh : $16\frac{3}{4}$ inches. Wing : 227 mm.

[Irides yellow, eyelids yellow ; bill black, base yellow ; legs and toes yellow, brownish in front.]

In naming this bird I have examined all the specimens in the British Museum, and have come to the following conclusions in regard to the various named races :—

ÆDICNEMUS CAPENSIS CAPENSIS Licht.

Ædicnemus capensis Licht. Verz. Doubl. 1823, p. 69 : Cape of Good Hope.

Range. South, south-west, south-east to east Africa, north to Lado.

Wing : 243–214 mm. Three from Plettenberg Bay, Cape Colony, the nearest I can find to the type-locality, have the wing 229–228 mm.

Of this, *Æ. c. damarensis* Rehw. (Vög. Afr. iii. Nachtr. 1905, p. 801 : German S.W. Africa) and *Æ. csongor* Madarasz (Arch. Zool. Budap. i. 1909, p. 11 : Schirati, German East Africa), are synonyms.

The character in regard to the tail given by Madarasz is not by any means constant, and I can only find it in two specimens, one from Masailand, and the other from north Guaso Nyiro ; whereas all the others from German and British East Africa agree with specimens from further south in every detail.

ÆDICNEMUS CAPENSIS AFFINIS Rüpp. Mus. Senck. ii. 1837, p. 210 : Kordofan.

Range. Kordofan, Abyssinia, and Somaliland.

A smaller, very rufous race. Wing : 222–204 mm.

ÆDICNEMUS CAPENSIS DODSONI O.-Grant, Bull. B. O. C. x. 1899, p. xix. : Lahej, S. Arabia.

A small, greyer race with finer markings. Wing : 224–220 mm.

I have been unable to examine specimens of *Æ. c. psammochromus* Reichw. (Vög. Afr. iii. Nachtr. 1905, p. 801 : Hinterlande von Togo), or of *Æ. c. ehrenbergi* Zedlitz (Orn. Monatsb. 1910, p. 9 : Dahlak Island, Red Sea), which I should not be surprised to find is either *Æ. c. affinis* or *Æ. c. dodsoni*, and most probably the former.

64. *Neotis cafra*. Stanley Bustard.

Otis cafra Licht. Cat. Rer. Nat. Rar. Hamb. 1793, p. 36 : Kaffirland.

a, b. ♂ ♀ ad. Amala River, 5400 ft. Oct. 16.

c. ♂ ad. S. Guaso Nyiro, 6600 ft. Nov. 29.

All are in good plumage, and there is no difference in coloration between the sexes.

Total length in flesh : ♂ 41 & 39½ inches ; ♀ 42½ inches.

Wing : ♂ 594 & 590 mm. ; ♀ 570 mm.

Weight : ♂ 15½ & 12 lbs. ; ♀ 13½ lbs.

I had at first thought that the east African bird was different from the south African, but I have come to the conclusion that the two south African specimens in the British Museum (one marked S. Africa, the type of *O. stanleyi* Gray, [Zool. Misc. 1831, p. 12] ; and the other from Potchefstroom) are both immature, as they agree perfectly with a specimen from British East Africa that is undoubtedly immature.

These differ from the adult in their smaller size, in being much more sandy above, in having the lores, cheeks, and ear-coverts distinctly buffy and more finely marked, and in the grey of the neck and breast being vermiculated with black and buffy.

The striking difference between the size of the adults and young is shown as follows:—Young South African bird, no sex, has the wing 416 mm. ; a Potchefstroom female has the wing 487 mm. ; one from B. E. A., no sex, has the wing 480 mm. ; and the adults, on the other hand, have the wing : a male in the British Museum from Lake Naivasha 609 mm., and others as stated above.

[Irides brown ; bill, upper mandible dark brown, lower greenish ; legs and toes dirty white, dirty yellowish white, or dirty cream. Tolerably common, usually in pairs.]

65. *Otis hartlaubii*. Hartlaub's Bustard.

Otis hartlaubii Heugl. J. f. O. 1863, p. 10 : Sennaar.

a. ♀ ad. Bakoro, 25 miles E. Lobar Mts., 3500 ft. Feb. 2.

Total length in flesh : $24\frac{1}{4}$ inches. Wing : 306 mm.

[Irides yellow ; bill light horn, culmen black ; legs and toes dirty cream-colour. Common.]

66. *Otis senegalensis canicollis*. Grey-necked Bustard.

Otis canicollis Reichw. Orn. Centralb. May 1881, p. 79 : Berdera, R. Juba.

a. ♀ ad. Lemek Valley, 6400 ft. Oct. 6.

b, c. ♂ ♀ ad. Amala, 5500 ft. Oct. 25.

d. ♂ ad. E. of Mt. Leganisho, 7000 ft. Nov. 1.

All are in good dress.

Total length in flesh : ♂ $22\frac{1}{2}$ & 23 inches ; ♀ $22\frac{1}{2}$ & 23 inches. Wing : ♂ 319 & 305 mm. ; ♀ 311 & 310 mm. Weight : one female, $2\frac{1}{2}$ lbs.

In the original description Reichenow gives no type locality, but in the July number of the J. f. O. of the same year he distinctly states, "*Hab.* Berdera (Africa orientalis)."

This proves that he is right in placing *O. s. somaliensis* Erl. (J. f. O. 1905, p. 82, Taf. ii. fig. 2 : Gandakore, nr. Harar) as a synonym of *O. s. canicollis* (cf. Vög. Afr. iii. Nachtr. p. 802), and that Neumann is wrong in keeping these distinct (cf. J. f. O. 1907, p. 307), but is right in attaching these races to *O. senegalensis* Vieill.

I cannot, however, see the differences between this race (*O. s. canicollis*) and the east African one, *O. s. erlangeri* Rechw. (Vög. Afr. iii. Nachtr. 1905, p. 802 : Matschako, B.E.A.), which therefore becomes a synonym, and makes one race from Somaliland to British and German East Africa.

[Irides brown ; bill : tip horn or bluish horn, basal portion yellow, around nostrils pink ; legs and toes dirty cream. Quite common.]

67. *Otis kori struthiunculus*. North African Kori Bustard.

Otis kori struthiunculus Neum. J. f. O. 1907, p. 306 : Lake Zuai, Abyssinia.

a. ♀ ad. Loita, 6300 ft. Oct. 3.

b. ♀ imm. Lemek Valley, 6600 ft. Oct. 6.

c. ♀ ad. Amala River, 5300 ft. Oct. 19.

All are somewhat worn.

The young bird differs from the adult principally in its smaller size and in being somewhat lighter above.

Total length in flesh: ad. $43\frac{3}{4}$ & $40\frac{1}{2}$ inches; imm. $36\frac{3}{4}$ inches. Wing: ad. 630 & 605 mm.; imm. 555 mm.

These three specimens agree well with the description of this subspecies, and show the distinctive difference in the lores and superciliaries when compared with the single south African specimen before me of *O. k. kori* Burch., the type-locality of which is "Junction of Orange and Vaal Rivers, Griqualand" (*cf.* Burchell, Trav. i. 1822, p. 391).

The wing in this south African bird measures 530 mm. The bird is undoubtedly immature, and besides showing the mottled lores and superciliaries as pointed out by Neumann, is distinctly more sandy above than the immature bird from the Amala River.

[*Adult.* Irides yellow-brown or yellow, lower half pale brown; bill, upper mandible dark brown, lower greyish white or black, base of lower mandible light horn; legs and toes dirty cream or dirty greenish white.

Immature. Irides yellow; bill, upper mandible dark horn, lower whitish; legs and toes dirty white.

More commonly seen than the Stanley Bustard.]

68. *Threskiornis æthiopica*. Sacred Ibis.

Tantalus æthiopicus Lath. Ind. Orn. 1790, p. 706: Æthiopia; probably Egypt, *cf.* Bruce, Trav. to Disc. Source of Nile, vol. v. App. i. 1790, p. 172, pl. 35.

a. ♂ imm. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh: $30\frac{1}{4}$ inches. Wing: 382 mm.

The single example is moulting into adult feathering on the wings.

This specimen matches very well the figure given by Bruce.

[Irides brown; bill black; legs and toes black. Quite common.]

69. *Plegadis falcinellus*. Glossy Ibis.

Tantalus falcinellus Linn. Syst. Nat. 12th ed. i. 1766, p. 241 : Austria.

a. ♂ ad. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : $22\frac{1}{4}$ inches. Wing : 272 mm.

In full winter plumage and a little worn.

[Irides brown ; bill plumbeous : legs and toes brownish black. Very common.]

70. *Ibis ibis*. African Wood Ibis.

Tantalus ibis Linn. Syst. Nat. 12th ed. i. 1766, p. 241 : Egypt.

a. ♂ imm. Guaso Nyiro, 6500 ft. Nov. 28.

Total length in flesh : $38\frac{1}{2}$ inches. Wing : 466 mm.

In immature brown dress and somewhat worn.

[Irides grey ; bill yellow ; head red ; legs and toes greyish flesh, upper three inches of legs red. Stomach contained grass and sand. The only one seen.]

71. *Abdimia abdimii*. White-bellied Stork.

Ciconia abdimii Licht. Verz. Doubl. 1823. p. 76 : Dongola, Egyptian Sudan.

a. ♂ ad. Assua River, 20 miles E. of Nimule, 2100 ft. Feb. 25.

Total length in flesh : $29\frac{1}{4}$ inches. Wing : 400 mm.

In quite good plumage, very little worn.

[Irides brown, bare skin blue, red spot in front of and above eyes ; V-shaped patch on throat red ; bill dirty green, tip red ; legs and toes dirty green, red at joint of leg. Several seen flying round our camp.]

72. *Ephippiorhynchus senegalensis*. African Jabiru.

Micteria senegalensis Shaw, Tr. Linn. Soc. vol. v. 1798, p. 35, pl. 3 : Senegal.

a. ♀ ad. Naam River, Lakwa, 3150 ft. Feb. 16.

Total length in flesh : $51\frac{1}{4}$ inches. Wing : 628 mm.

Weight : 11 lbs.

In good plumage ; wings and tail somewhat worn.

[Irides yellow, eyelids red and yellow ; bill red with

black band in centre, yellow patch on crown (forehead); wattles yellow; legs black, joints red, feet red and black; bare skin on breast red, edged with yellow and blue. Stomach contained insects. Several seen for the first time on the Naam River, where they were conspicuous objects, wading with Herons, Ibises, Jacanas, etc.]

73. *Leptoptilus crumeniferus*. African Marabou.

Ciconia crumenifera Less. *Traité*, 1831, p. 585 : Senegal.

a. ♂ ad. E. of Mt. Leganisho, 6600 ft. Oct. 31.

Total length in flesh : $52\frac{1}{8}$ inches. Wing : 685 mm.

Weight : 16 lbs.

Very worn and in moult.

[Irides brown; skin round eyes red, mottled with black; bill pale horn, black at base; legs and toes white? Common everywhere.]

74. *Scopus umbretta bannermani*. Greater Hammer-head.

Scopus umbretta bannermani Claude Grant, Bull. B. O. C. vol. xxxv. 1914, p. 27 : Mt. Leganisho, Brit. East Africa.

Considerably larger than *S. umbretta umbretta*; often somewhat more ashy below. Wing 300–330 mm.

Type, ♀ ad. Mt. Leganisho, B.E. Africa. Collected on Oct. 31, 1912, by Willoughby P. Lowe. Wing 328 mm.; culmen 77 mm.; tarsus 65 mm.

Named in honour of Mr. D. A. Bannerman.

a. ♀ ad. Mt. Leganisho, 6600 ft. Oct. 31.

b. ♂ ad. Narossura River, 5000 ft. Nov. 15.

Total length in flesh : ♂ $20\frac{1}{8}$ inches; ♀ $20\frac{3}{4}$ inches. Wing : ♂ 311 mm.; ♀ 328 mm.

The October bird is in fresh new dress, and the November one is rather worn and is moulting.

[Irides brown; bill black; legs and toes black. Stomach contained fish, frogs, dragonflies, and a newt. Common, wherever water is found.]

It was first pointed out by Major Kelsall and Mr. D. A. Bannerman (*Ibis*, 1914, p. 225) that the true *Scopus*

umbretta Gmelin (Syst. Nat. i. pt. 2. 1789, p. 618 : Africa = Senegal, cf. Buffon, Pl. Eul. n. 796) is quite a small bird, having the wing 248–256 mm., as compared with 300–330 mm. of other specimens from the rest of Africa. Therefore the larger bird must in future bear the name of *Scopus umbretta bannermani*.

Cephus scopus Wagl. (Syst. Av. 1827, p. 146) is a substitute name for *Scopus umbretta*.

Ardea fusca Licht. (Forst. Descr. Anim. 1844, p. 47 : Cape of Good Hope) is preoccupied by *Ardea fusca* Lath. (Ind. Orn. ii. 1790, p. 700 : Cayenne).

Range. *Scopus umbretta bannermani*: All Africa, including western Arabia and Madagasear, excepting Senegal to Nigeria. Single birds from Angola and Madagasear have rather shorter bills, but otherwise agree.

Scopus umbretta umbretta.—Senegal to Nigeria.

75. *Phoyx purpurea*. Purple Heron.

Ardea purpurea Linn. Syst. Nat. 12th ed. i. 1766, p. 236 : France.

a. ♀ juv. Lake Naivasha, 6700 ft. Dec. 5.

Total length in flesh : $33\frac{1}{2}$ inches. Wing : 330 mm.

In fresh first plumage; feathers appearing on mantle are first-plumage ones.

[Irides yellow, round eye greenish yellow; bill striped black, orange, and yellow; legs—lower half and feet dark brown, upper half greenish yellow.]

76. *Ardea melanocephala*. Black-necked Heron.

Ardea melanocephala Vig. & Childr., in Denh. & Clapp. Trav. ii. App. 1826, p. 201 : between Lake Chad and the coast of Tripoli; probably near or at Lake Chad.

a, b. ♂ ad., ♂ imm. Assua River, 10 miles E. of Nimule, 2100 ft. Feb. 25.

Total length in flesh : ad. $35\frac{1}{2}$ inches; imm. 37 inches. Wing : ad. 392 mm.; imm. 382 mm.

The adult is in good clean dress; the immature bird is apparently in first dress.

[*Adult*.—Irides yellow, bare skin round eyes greyish yellow ; bill : upper mandible black, lower flesh-colour, tip yellow ; legs and toes dark brown.

Immature similar, except lower mandible pinkish horn.

Stomach contained lizards, mice, and locusts. Several seen on the dry ground, away from the river.]

77. *Ardea cinerea cinerea*. Common Heron.

Ardea cinerea Linn. Syst. Nat. 10th ed. 1758, p. 143 : Sweden.

a, b. ♀ ad., ? imm. Turkwel River, 1950 & 2000 ft. Jan. 12 & 13.

Total length in flesh : 36 inches. Wing : ad. 433 mm. ; imm. 411 mm.

The adult is in good dress and is starting to assume by moult the plumes of the breast and back. The immature bird is in first dress and is rather worn.

[*Adult*.—Irides yellow ; bill black, tip of upper mandible yellow, lower dirty yellow ; yellow spot in front of eye ; skin around eye greenish ; legs and toes brown, top of legs greenish.

Immature.—Irides yellow ; bill black, tip and base of lower mandible yellowish ; yellow spot in front of eye ; skin around eye greenish ; legs and toes blackish green.

The adult was shot sitting in a thorn tree.]

78. *Mesophoyx intermedius brachyrhynchus*. Short-billed White Heron.

Herodias brachyrhynchus Brehm, J. f. O. 1858, p. 471 : Blue Nile, between 12° and 13° N. latitude.

a. ♀ ad. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : $27\frac{1}{2}$ inches. Wing : 316 mm.

In quite good new dress, and having both dorsal and breast plumes.

The character of the yellow upper half of the leg holds quite good in all specimens that I have examined.

One female from Elea, Baro River, Sudan, in the National collection, obtained by Zaphiro for Mr. McMillan, appears

in the dry skin to have an altogether black leg, but if carefully examined a difference can be noted and doubtless the upper half of the leg was yellow ; though unfortunately no soft parts are recorded on the label, except those of the eye.

[Irides yellow, skin around eye greenish yellow ; bill yellow ; legs and toes black, upper half of leg yellow. Common on Lake Naivasha.]

79. *Egretta garzetta garzetta*. Little Egret.

Ardea garzetta Linn. Syst. Nat. 12th ed. i. 1766, p. 237 : "in Oriente."

a. ♀ ad. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : 25 inches. Wing : 265 mm.

Rather worn and moulting. Back and breast plumes poor ; no nape plumes.

[Skin round eyes greenish yellow ; bill black, base of lower mandible whitish brown ; legs black, feet greenish yellow.]

80. *Butorides atricapilla*. African Black-headed Heron.

Ardea atricapilla Afzelius, Kongl. Vet.-Akad. nya Handl. Stockh. xxv. 1804, p. 264 : Sierra Leone.

a. ♂ imm. Narossura River, 4950 feet. Nov. 12.

Total length in flesh : $18\frac{1}{8}$ inches. Wing : 172 mm.

In fresh first plumage.

[Irides yellow, above and below eye greenish yellow ; bill black, lower half of lower mandible green ; legs and toes green in front, yellow behind. Stomach contained frogs. Only two seen.]

81. *Bubulcus ibis*. Buff-backed Egret.

Ardea ibis Linn. Syst. Nat. 10th ed. 1758, p. 144 : Egypt.

a. ♀ ad. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : $19\frac{1}{4}$ inches. Wing : 240 mm.

In winter dress and still moulting. Somewhat worn.

[Irides yellow, round eye whitish yellow ; legs and toes dark brown.]

82. *Phæniconaias minor*. Smaller Flamingo.

Phænicopterus minor Geoffr. Bull. Sc. Soc. Philom. 1798, p. 98 : Senegal (*cf.* Vieill. N. Diet. d'Hist. Nat. xxv. 1817, p. 520).

a, b. ? ad., ♂ juv. Lake Hannington, 3700 ft. Dec. 25.

Total length in flesh : ad. $32\frac{1}{2}$ inches ; juv. 29 inches.
Wing : ad. 330 mm. ; juv. 304 mm.

The adult is very worn and faded, and is apparently in summer dress. The young bird is moulting into a more adult dress.

[*Adult.* Irides reddish yellow ; bill red, tip black ; legs and toes red.

Juv. Irides brown ; bill dirty brown, bare skin of face black ; legs and toes grey.

Abundant ; no signs of *P. roseus*.]

83. *Sarkidiornis melanotus africanus*. African Knob-billed Duck.

Sarkidiornis africanus Eyton, Mon. Anat. 1838, p. 103 : Gamba River, *i. e.* Gambia River, West Africa.

a. ♂ ad. Lake Naivasha, 6700 ft. Dec. 6.

Total length in flesh : $25\frac{1}{2}$ inches. Wing : 346 mm.

In quite good dress, rather faded above in parts.

I can appreciate this race, which is always smaller than specimens of *Sarkidiornis melanotus melanotus* (*Anser melanotus* Penn. Ind. Zool. 1769, p. 12, pl. xi. : Ceylon).

It is worthy of note that Pennant's original description gives the "back and wings black, but the ends of the primary feathers of a fine variable green," which does not appear to be an absolutely correct description.

The copy of the first edition of Pennant's work, examined by me at the Linnean Society, is not dated, and I have quoted the date 1769 from Sherborn, Ind. Anim. 1902, p. xliii.

[Irides brown ; bill dark brown, tip of lower mandible white ; legs and toes grey. Only one seen.]

84. *Alopochen ægyptiacus*. Egyptian Goose.

Anas ægyptiaca Linn. Syst. Nat. 12th ed. i. 1766, p. 197 : Egypt.

a ♀ ad. S. Guaso Nyiro, 6500 ft. Nov. 28.

Total length in flesh : 27 inches. Wing : 378 mm.
Weight : $4\frac{1}{4}$ lbs.

In good dress, very little worn.

[Irides yellow; bill pink and black; legs and toes pink.]

85. *Anas undulata*. Yellow-billed Duck.

Anas undulata Dubois, Orn. Gall. i. 1839, p. 119, pl. 77 :
Cape of Good Hope.

a. ♂ ad. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : 22 inches. Wing : 251 mm.

In good dress and very little worn.

There are no specimens in the National collection from the type-locality, and though I myself have shot many of these ducks near Cape Town, unfortunately I did not preserve them. Collectors should, where common birds are concerned, be informed of the type-localities so that one or two specimens could be collected.

[Irides brown; bill: upper mandible yellow, tip and around nostrils black; lower mandible, tip and basal three-fourths black, remainder yellow; legs and toes dark brown. Very common.]

86. *Nettion punctatum*. Hottentot Teal.

Anas punctata Burch. Trav. i. 1822, p. 233 : Zak River, Cape Colony.

a, b. ♂ ♀ imm. Lake Naivasha, 6700 ft. Dec. 3.

Total length in flesh : $13\frac{1}{2}$ & $13\frac{1}{4}$ inches. Wing : 146 and 155 mm. Weight : ♂ $\frac{1}{2}$ lb.

Neither is adult, and the male is moulting on the neck.

[Irides brown; bill blue, ridge of culmen black; legs and toes blue. Does not appear to be common; these specimens were obtained from a small flock of five.]

87. *Dafile acuta*. Common Pintail.

Anas acuta Linn. Syst. Nat. 10th ed. 1758, p. 126 : Sweden.

a. ♀ ad. Mau, 9100 ft. Dec. 2.

Total length in flesh : $20\frac{1}{2}$ inches. Wing : 253 mm.

In bright, but worn dress; below, the whole of the underparts are rusty through weathering; not moulting.

[Irides brown; bill black, greyish on sides and at base; legs and toes greenish grey. This was the only duck seen on the Mau Escarpment.]

88. *Pœcilonetta erythrorhyncha*. Red-billed Teal.

Anas erythrorhyncha Gm. Syst. Nat. i. pt. 2, 1789, p. 517 : Cape of Good Hope.

a. ♂ ad. S. Guaso Nyiro, 6500 ft. Nov. 29.

Total length in flesh : $17\frac{1}{2}$ inches. Wing : 224 mm. Weight : 1 lb.

In clean new dress and still moulting.

I can find no specimen in the National collection from the type-locality.

[Irides brown; bill pink, stripe between nostrils black, lower mandible black, pink at tip; legs and toes plumbeous. Shot from a flock of about fifty.]

89. *Spatula clypeata*. Common Shoveler.

Anas clypeata Linn. Syst. Nat. 10th ed. 1758, p. 124 : Sweden.

a. ♂ ad. Lake Hannington, 3700 ft. Dec. 25.

Total length in flesh : $19\frac{1}{4}$ inches. Wing : 232 mm.

This specimen is badly worn, faded and almost bleached to a creamy colour, so that it is very difficult to see in what state of dress it really is; but it appears to be in eclipse and is starting to moult.

[Irides yellow; bill black; legs and toes orange. Shot from a flock of about 25; the only one in this peculiar plumage.]

90. *Phalacrocorax lucidus*. White-breasted Cormorant.

Halienus lucidus Licht. Verz. Doubl. 1823, p. 86 : Cape of Good Hope.

a. ♀ imm. Lake Naivasha, 6700 ft. Dec. 4.

Total length in flesh : 31 inches. Wing : 315 mm.

Apparently not quite fully adult. Moulting.

[Irides green ; pouch dirty yellow ; bill greyish horn ; legs and toes black. Several seen, the one shot was nesting and had a well developed egg inside.]

91. *Microcarbo africanus*. Long-tailed Cormorant.

Pelecanus africanus Gm. Syst. Nat. i. pt. 2, 1789, p. 577 : Africa ; I designate White Nile District.

a. ♂ imm. Lake Naivasha. Dec. 5.

b. ♀ imm. 15 miles S. of Baringo. Dec. 26.

Total length in flesh : ♂ $22\frac{1}{2}$ inches ; ♀ 21 inches. Wing : ♂ 212 mm. ; ♀ 197 mm. Weight : ♂ $1\frac{1}{2}$ lb.

The male is apparently changing from the first to the second plumage. The female is apparently changing into the last stage before the full adult is reached, as both black and ashy feathers are coming in on the breast.

[♂. Irides brown ; bill brown, banded with yellow, base of lower mandible and pouch yellowish flesh, bare skin in front of eye pale yellow ; legs and toes black.

♀. Irides red ; bill : upper mandible black, lower yellow and barred with brown ; legs and toes black.

Very common on Lake Naivasha.]

92. *Pelecanus onocrotalus*. Mitred Pelican.

Pelecanus onocrotalus Linn. Syst. Nat. 10th ed. 1758, p. 132 : Africa ; I designate White Nile District.

a. ♂ ad. Lake Naivasha, 6700 ft. Dec. 3.

b. ♂? juv. Lake Hannington. Dec. 25.

Total length in flesh : ad. 73 inches ; juv. $52\frac{1}{2}$ inches. Wing : ad. 684 mm. ; juv. 592 mm. Culmen : ad. 430 mm. ; juv. 233 mm. Weight : ad. 18 lbs.

In the adult the tail is in full moult and the number of

feathers cannot be counted: it is in very worn plumage and moulting, and has no swelling on the forehead. It appears to be a very old bird.

In the young example the tail is composed of 22 feathers, and is in entirely brown plumage and not much worn. Evidently in first dress.

[*Ad.* Irides red-brown; bill blue, pinkish flesh, red in stripes; legs and toes orange; round eye flesh; pouch yellow.

Juv. Irides yellow, pouch dirty yellow; bill greyish horn; legs and toes dirty yellow.

Two seen at Lake Naivasha; tolerably common and associating with Flamingoes at Lake Hamington.]

[To be continued.]

II.—*A recent Ornithological Discovery in Australia.*

By GREGORY M. MATHEWS, F.R.S.E., M.B.O.U.

IN the Introduction to my 'List of the Birds of Australia,' 1913, pp. xviii-xxiv, I made a few comments on zoo-geographical study, and on pp. xxv-xxvi added to the Australian avifauna three species, representing three genera not hitherto represented in the fauna, viz., *Globicera pacifica*, *Geoffroyus geoffroyi*, and *Eclectus pectoralis*. That two of these were residents newly brought to light was made clear by the fact that they were new subspecific forms, and not subspecies previously named from elsewhere and here simply recorded. For the first-named an old name was revived, but the fact remains the same.

Many ornithologists of repute have handled collections of birds from the islands north of the Australian continent, but they have rarely compared them with Australian birds, and appear to have been unacquainted with the local conditions and with the vast extent of Australia, ornithologically considered. Showing a disregard of the literature, they have probably caused considerable confusion and have retarded the advancement of knowledge. This is written without prejudice, but simply from an examination of the facts